# THE AUK:

## A QUARTERLY JOURNAL OF

## ORNITHOLOGY.

VOL. XIII. OCTOBER, 1896. NO. 4.


## THE SHARP-TAILED SPARROW (*AMMODRAMUS CAUDACUTUS*) AND ITS GEOGRAPHICAL RACES.


BY JONATHAN DWIGHT, JR.


*Plate IV.*

THE SHARP-TAILED SPARROW is a bird that can boast of considerable antiquity among North American species and it has been figured more than once by early writers, but the two geographical races that have been described of late years are now figured for the first time on the accompanying plate. The specific name dates from 1788, when the bird was called by Gmelin *Oriolus caudacutus* (Gmelin, Syst. Nat., I, pt. i., 1788, 394). His description, however, is practically a translation into Latin of Pennant's description of a bird he calls the Sharp-tailed Oriole (Pennant, Arctic Zoöl., II, 1785, 261), which Latham also describes (Latham, Synop. Birds, I, pt. 2, 1782, 448, pl. xvii), giving a fairly recognizable colored plate and stating that he is indebted to Pennant for the drawing of the bird as well as for the description. Neither Pennant nor Latham made use of any scientific name and therefore Gmelin becomes the authority for

a name that still survives. That it is applicable to true *caudacutus*, and not to either of the subspecies, becomes most probable when we read Gmelin's description in conjunction with Latham's plate, both based on the same material, a specimen from New York in Mrs. Blackburn's collection. We read, "pectus, femora et crissum pallide flavescentia, maculis fuscis," a statement which seems to indicate the paler buff and distinct streaking of *caudacutus* as compared with *nelsoni*, and other parts of the description contribute to show that pale *subvirgatus* was not the bird in hand,—these being the three forms to which the old description might apply.

Wilson, apparently unaware of previous recognition, figured and described an undoubted *caudacutus*, which he named *Fringilla caudacuta*, Sharp-tailed Finch (Wilson, Amer. Orn., IV, 1811, 70, pl. xxxiv, f. 3), and Audubon also figured and accurately described the species (Audubon, Orn. Biog., II, 1834, 281, pl. cxlix, V, 1839, 499; Birds Am. III. 3, 1841, 108, pl. clxxliv,). It is again poorly figured by DeKay (Zoöl. N. Y., pt. ii, 1844, 164, pl. 67, f. 154) and from him received the curious name of 'Quail-head,' so called from a fancied resemblance to the markings of the Bob-white.

The name *caudacutus*, once applied, seems to have been adopted by all later writers, save Nuttall (who saw fit to call the bird *Fringilla littoralis* for reasons best known to himself), and consequently the bird has not been burdened with the multiplicity of names that so often fall to the lot of early described species.

In 1875 a smaller, brighter colored race was separated under the name *nelsoni* (Allen, Proc. Bost. Soc. N. H., xvii, March, 1875, 293) on the evidence of a number of specimens obtained by Mr. Edward W. Nelson and others on the Calumet Marshes near Ainsworth, Illinois, in September and October, 1874. This has proved to be the inland representative of its strictly littoral relatives.

In 1887 I described a race from the marshes of New Brunswick, Canada (Dwight, Auk, IV, July 1887, 233) to which I applied the name *subvirgatus*. It is a comparatively pale race that seems to have closer affinities with *nelsoni* than with its nearer breeding neighbor *caudacutus*, and its recognition raises interesting questions of distribution yet to be solved.

In 1891 a race called *becki* was described from California (Ridgway, Proc. U. S. Nat. Mus., XIV, 1891, 483) on the strength of a single specimen. This proved to be a straggling *nelsoni* so that *becki* became a mere synonym.

I have briefly sketched the history of the Sharp-tailed Sparrow and its races and only touched upon a few essential points, because it is beyond the scope of the present paper to treat the subject exhaustively. It is rather my purpose to emphasize by collation the facts of which we are already possessed and call attention to the gaps in our knowledge of these birds, well-known as they may seem to be.

## PLUMAGE.

First of all let us grasp the characters by which the three forms may be distinguished. I went over them at some length in my early article and to-day, after a lapse of nine years, having examined fully five times as much material as was originally before me, I find that there is little to modify the conclusions then reached.

*Ammodramus caudacutus* is, at all seasons, so distinctly streaked below with black, that seldom does a specimen present itself that can for a moment be confounded with either of the other races, when once this difference is appreciated by specimens in hand. Besides, the birds are large, with large bills and are richly colored when in unworn plumage, although with all the members of this genus the feathers are rapidly and extensively abraded. There is considerable individual variation, and, it may be noted, winter specimens from South Carolina are as a rule richer in color and more heavily streaked than northern birds.

*Ammodramus caudacutus nelsoni* is a small form, this being most readily apparent in the bill and length of wing. In coloration it is very similar to *caudacutus*, though usually richer in browns and buffs, especially the ochraceous, buffy yellow wash of the breast and flanks. The streaking below is obscure, the lines dusky, suffused and narrow as compared with the other forms. In spring plumage, and occasionally in the fall, the lines are more definite yet characteristically narrow.

*Ammodramus caudacutus subvirgatus* is intermediate in size between *caudacutus* and *nelsoni*. It lacks the distinct streaking of

the former and the bright colors of the latter, being a pale grayish looking bird, and the edgings of the back feathers are ashy or pearl-gray, according to season, instead of pure white, as in *nelsoni*. The accompanying plate is intended to show these differences, and on it are figured the type of *subvirgatus* (No. 1261 ♂ adult, Hillsborough, New Brunswick, July 19, 1886, J. Dwight, Jr.), and a breeding male *nelsoni* taken by Dr. Louis B. Bishop in Towner Co., North Dakota, July 5, 1895 (L. B. B. No. 2071). It seems preferable to thus compare two breeding males rather than figure the type of *nelsoni* which, taken in the autumn, is very possibly a migrant. The coloring is most excellent save in the tarsus and foot of *nelsoni*, which should be of a purplish flesh color. The bills do not show the differences in size that usually are obvious.

In order to bring out as definitely as possible the points of difference (appreciable at any season in all birds, save those in first plumage) between these allied races I will present them in parallel columns:

| | *caudacutus.* | *nelsoni.* | *subvirgatus.* |
|---|---|---|---|
| Lateral crown stripes. | Deep brown. | Deep, rich brown. | Paler, greenish brown. |
| Nape and back. | Browns prevail. | Browns prevail. | Grays prevail. |
| Outer edgings of back feathers. | Ashy or buffy. | White and conspicuous. | Ashy or pearl-gray and obscure. |
| Edgings of secondaries and tertiaries. | Rusty. | Bright, rusty buff. | Paler. |
| Breast and sides of head. | Buffy and ochraceous tints intense. | Buffy and ochraceous tints more intense. | Tints pale. |
| Breast and flank streaks. | Distinct black and broad. | Obscure, or suffused and narrow. | Obscure, or suffused and medium width. |
| Abdomen. | Clear white. | Clear white. | Dingy white. |
| Bill. | Large and long. | Small and short. | Medium. |
| Measurements. | Largest size. | Smallest size. | Medium size. |

Typical birds are easily recognized when birds of like season are compared, but difficulties arise in determining certain fall migrants or winter birds (of which there are a large number in collections) that show intergradation between *nelsoni* and *subvirgatus*. They are taken on the Atlantic coast at various points

and we can only suppose they come from unknown breeding grounds. When we realize that *nelsoni* has not been recorded as breeding east of about 87° W. long. while *subvirgatus* has not been found west of about 70° W. long., there is ample ground for such supposition.

## DISTRIBUTION.

*Ammodramus caudacutus* is restricted in the breeding season to the salt marshes of the Atlantic coast from Virginia to Massachusetts. North of the latter named State, in the limited marshes of the New Hampshire and Maine coasts, it is probable that *subvirgatus* would be found. In fact a few stragglers have been secured that, singularly enough, approach more nearly to *nelsoni* than to *caudacutus* as would naturally be expected. One specimen is from Cambridge, Mass., May 31, another from Revere, Mass., June 7, and a third from North Madison, Conn., June 9. These birds may have been late migrants but the probability is they were breeding. It is obvious therefore that breeding specimens from the Maine coast are greatly to be desired. A few *caudacutus* linger through the winter as far north as New Jersey (Stone, Birds E. Pa. and N. J., 1894, 114), the bulk passing to the South Atlantic States and even reaching Tarpon Springs, Florida, on the Gulf coast (Scott, Auk, VI, 1889, 322).

*A. c. nelsoni* has been sparingly found during the breeding season in Northern Illinois, in Wisconsin, in Minnesota, in Kansas, in the Dakotas, and in Manitoba. It seems to be a comparatively rare species and spring records are few and far between. Large numbers of migrants are found, however, at many points on the Atlantic coast from Massachusetts to South Carolina, they have been taken at Corpus Christi, Texas (Chapman, Bull. Am. Mus. N. H., III, No. 2, 223), and a straggler to the vicinity of San Francisco, California, was described as a new race, to which reference has already been made. It is probable that the birds found at Galveston (Nehrling, Bull. N. O. C., VII, 1882, 12) were of this race and not *caudacutus* as recorded, and the same *may* be true of the record of *caudacutus* for Ottawa, Ontario (E. E. Thompson, Auk, VI, 1889, 204).

*A. c. subvirgatus* is peculiar to the fresh and salt water marshes of the Maritime Provinces of Canada, especially those bordering on the Bay of Fundy and the Gulf of St. Lawrence. Strangely enough it has never been taken in Nova Scotia, although it undoubtedly occurs there, for I have observed it within two or three miles of the boundary line when rambling over the meadows of the Petitcodiac River in New Brunswick, not far from the type locality. Since my discovery of the birds about ten years ago I have found them breeding at Tignish, Prince Edward Island, where they were recorded as *caudacutus* long before *subvirgatus* was separated (Brewster, Bull. N. O. C., II, 1877, 28), at Bathurst, N. B., and at Rivière du Loup, Quebec, on the south shore of the St. Lawrence. They have also been found a few miles west of the last named place at Kamouraska (Dionne, Oiseaux de Quebec, 1889, 82). West of this I have not found them, neither at L'Islet nor on the marshes between the city of Quebec and Ste. Anne de Beaupré. Consequently there appears to be a wide gap between the headquarters of this form and those of *nelsoni*,—over one thousand miles. In migration the birds pass as far south as South Carolina (Brewster, Auk, VII, 1890, 212) mingling with the true *caudacutus* and *nelsoni* when Massachusetts is reached. I have already spoken of three birds of this race that apparently were stopping to breed in southern New England. One was recorded as *nelsoni* (Henshaw, Auk. III, 1886, 486) and it might well be compared with some of the pale *nelsoni* from the west, but I can absolutely match it with occasional specimens from the type locality of *subvirgatus*, which themselves approach very close to exceptionally pale *nelsoni*. This is to be expected in any large series of birds, especially those which are split into races, but if it should be proved that *subvirgatus* regularly breeds on the same ground as *caudacutus*, the question of considering *nelsoni* as a separate species with *subvirgatus* as its eastern race may be seriously discussed.

## HABITS.

A few words about the habits of these birds may not be amiss although there is little to add to what has already been written

by numerous observers. The three races are very much alike in habits and their chief trait is secretiveness. True *caudacutus* may be found on salt marshes hiding successfully under the sheets of sea-weed and drift brought by the tide and left to dry on the banks of the ditches, or nimbly racing through the short grass and weeds peculiar to such localities. Their wheezy gasp of a song may be heard from tussock, stake or block of drift wood and on the least alarm, the birds vanish, generally preferring not to take wing. During the migration they are more reckless in exposing themselves and often cling to tall reeds or perch on them when pursued. They usually go in small bands associated with the other races and with *Ammodramus maritimus*, a species that is a bosom friend at all seasons. The nests are hidden in drift or protected by a tussock of grass.

Of *nelsoni* little seems to be known. Mr. E. W. Nelson has a little to tell of their habits and even states that they "utter a short unmusical song" in the autumn (Nelson, Bull. Essex Inst., VII, 1877, 107). He found them abundant on the Calumet Marshes, near Chicago, Illinois, and observed a few in June, probably breeding. Hitherto no nest has been taken, although a correspondent writes that he secured one some years ago in this very locality. As he sold the nest and eggs, and has lost all the data, and I have been unable to trace the purchaser, I think it best to say no more about it and wait for an authentic set to be secured, before attempting a description. A brief account is given of this race by Goss (Birds of Kansas, 1891, 449) and he speaks of the song as "a short weak unmusical twittering warble." He observed two young in first plumage, of which no specimens have as yet been taken, so far as I know.

Since my description of *subvirgatus* was published nine years ago I have had opportunity nearly every summer to study this bird and yet there is but little to add to my original observations. The birds are scattered rather abundantly in the breeding season over immense tracts of meadow land along the Petitcodiac River in New Brunswick. I have traced them for twenty miles and notice that they most frequent certain damp spots and utilize the narrow ditches as highways. These meadows are diked off from the tide, and are in no sense salt marshes where the tide creeps at will. A

luxuriant growth of grass covers them and, as I have before stated, the Bobolink and Savanna Sparrow are next door neighbors to *subvirgatus*. Quite different are the salt marshes of Prince Edward Island and of the St. Lawrence where the birds have been found. There short grass, bogs and few ditches are the rule, though the birds seem equally at home. They may fly considerable distances when disturbed, but are more likely to dive into the grass and defy all efforts to again flush them. Their flight is much steadier than that of the Savanna Sparrow and lacks the jerky undulations peculiar to that bird. I have already made two attempts to discribe the song (Auk, IV, 1887, 239; Chapman's Birds E. N. A. 1895, 297), which varies little from that of *caudacutus* and much resembles the choking gasp of *Ammodramus maritimus*.

All my efforts to secure a nest have proved unsuccessful in spite of having devoted much time to the task. The difficulties of systematic search are many and, so far, chance has not favored me.

In closing I may say that the study of the Sharp-tails is beset with many difficulties and necessitates excursions devoted almost exclusively to their pursuit. Their exasperating shyness is another factor to baffle the bold observer who, regardless of mud and mosquitoes, invades their stronghold; but perseverance must win in the end and it is to be hoped only a few more years will be required before we are in possession of the facts now wanting to complete our knowledge of these marsh-loving birds.

---

## SUMMER BIRDS OF THE ANTHRACITE COAL REGIONS OF PENNSYLVANIA.

BY R. T. YOUNG.[1]

THE study of the birds which breed in the anthracite coal belt of Schuylkill, Carbon, and Luzerne Counties, Pa., is one of much interest to the ornithologist.

The fauna of this region is Alleghanian with, however, traces of the Carolinian fauna. Passing to the south of the Blue Mt.,

[1] Read before the Delaware Valley Ornithological Club of Philadelphia.

from Schuylkill into Berks County, the fauna merges gradually into the Carolinian, while in the northern portion of Luzerne County the Canadian element is found.

This region then, may be looked upon as intermediate between the Carolinian fauna on the south, and the Canadian on the north, which, together with the fact that ornithologists have given far more attention to the country farther north among the higher Alleghanies than they have to this section, makes it a field well worth studying.

The intermingling of Canadian and Carolinian species is well illustrated by the occurrence of the Junco near Penn Haven Junction, Carbon County, and the presence of the Yellow-breasted Chat at Harvey's Lake, as recorded by Mr. Witmer Stone (Proc. Acad. Nat. Sci. Phila., 1891, p. 431).

The notes from which this paper is written were gathered during June and July, 1895, while I was staying at Pottsville, Schuylkill County. Although I covered a considerable range of territory on various trips, the notes obtained are far from complete, as I had very little time to devote to collecting, and consequently my visits to many places were extremely brief.

The bulk of my time was spent in the near vicinity of Pottsville and in the neighborhood of Hazleton, Luzerne County, short trips being made to Hamburg, Berks County; Rock Glen, Lumber Yard, Nescopeck and Harvey's Lake, Luzerne County; while some work was done at Delano, Schuylkill County; Mt. Carmel, Columbia County, and along the Black Creek from Weatherly to Penn Haven Junction in Carbon County.

The appearance of the country throughout the coal-fields is bleak and uninviting. The general altitude varies from 1000 to 1800 feet; in no case I believe exceeding 2000 feet.

At Pottsville the Schuylkill River turns abruptly to the east and follows a pleasant farming valley for about twenty miles to Tamaqua. This valley is the southeastern boundary of the coal beds. To the northwest of it from near Mauch Chunk on the east to some distance west of Pottsville, the country is hilly and broken; ridge succeeding ridge with long narrow valleys between, the ridges rising usually not more than 100 to 200 feet above the valleys. The barren, rocky soil is covered with a scanty growth

of chestnut and oak in some places, which in others gives way to the pitch pine, while scrub oaks and blueberry vines form a thick undergrowth.

In many places dead trees and stumps form convenient nesting-sites for House Wrens, Crested Flycatchers and Flickers. These birds are more numerous in such localities than elsewhere, the merry song of the House Wren in particular being heard on every side, while the Towhee and Chestnut-sided Warbler are also most characteristic species.

Besides the Schuylkill River the principal streams of the region visited are Black and Nescopeck Creeks. The former, which is a stream of thirteen miles in length, has its source in the mine streams of Hazelton and empties into the Lehigh River at Penn Haven Junction, falling in its course 800 or 1000 feet. From Weatherly the stream flows through a deep, narrow gorge with the hills rising almost perpendicularly on either side, some 300 feet. Some little hemlock growth covers these hills while along the stream are found a few wild cherry trees together with some pine, aspen, and birch.

From Tomhicken the Nescopeck Creek flows to the west joining the east branch of the Susquehanna at Nescopeck. Along the hills between which it flows there is also a considerable growth of hemlock and a few white pines. There is also some little hemlock near Pottsville.

Along the edges of the streams in the lower parts of the country, as at Pottsville and Weatherly, the rhododendron grows in wild profusion in the denser woods, in some places forming almost impenetrable thickets, while the laurel seems more abundant on the open hillsides and is not restricted so much to the lower valleys.

One of the most characteristic birds of these rhododendron thickets near Pottsville is the Hooded Warbler, which may be heard singing occasionally quite late in August. The distribution of this species seems worthy of note. Occurring as a common summer resident in the swamps of southern New Jersey, it is not found, so far as I know, anywhere in the vicinity of Philadelphia, except as a rare migrant, and then appears rather commonly along the Blue Ridge and near Pottsville.

## LIST OF SPECIES OBSERVED.

My time was too short to enable me to give a complete list of birds at each locality I visited, so I have endeavored merely to give as comprehensive a list as possible of the species observed within the limits of the coal-fields.

1. **Ardea virescens.** GREEN HERON.—This was the only Heron noted, one being seen at Hamburg and one family at Pottsville.

2. **Actitis macularia.** SPOTTED SANDPIPER.—While fairly common along the Schuylkill at Hamburg and the Susquehanna at Nescopeck, I did not observe this bird anywhere through the coal country during the breeding season, although I thought I distinguished its note at Lumber Yard on one or two occasions.

I saw Spotted Sandpipers on Tumbling Run dam on or about August 4, a point I had not visited about Pottsville during the breeding season.

3. **Ægialitis vocifera.** KILLDEER PLOVER.—The Killdeer does not seem to extend north of the Blue Ridge; a few at Hamburg being the only ones I noted.

4. **Bonasa umbellus.** RUFFED GROUSE.—Occurs at Nescopeck, just north of the coal region but I did not find it anywhere to the south.

5. **Colinus virginianus.** BOB-WHITE.—A Quail was heard whistling once or twice at Lumber Yard.

6. **Zenaidura macroura.** DOVE.—Doves, while pretty generally distributed, seemed rather scarce through the mountains.

7. **Falco sparverius.** SPARROW HAWK.—One or two noticed for several days along Black Creek above Penn Haven Junction and I have no doubt they breed there.

Of the other rapacious birds which may breed throughout this region, I know but little. I did not see any Owls and the three or four large Hawks which I noticed I failed to identify positively.

8 and 9. **Coccyzus americanus et erythrophthalmus.**—Both species of Cuckoo were observed but as to their comparative abundance I cannot say. They seemed rather more common at Pottsville than elsewhere.

10. **Ceryle alcyon.** KINGFISHER.—One was seen at Nescopeck and about the end of August I saw one several times at Tumbling Run, bu. cannot say as to whether it bred near there or not.

11. **Dryobates villosus.** HAIRY WOODPECKER.—One was seen at Lumber Yard and also at Rock Glen.

12. **Dryobates pubescens.** DOWNY WOODPECKER.—Seen at Rock Glen.

13. **Colaptes auratus.** FLICKER.—Flickers seemed rather scarce throughout the region, a few being recorded near Hazleton and Penn Haven Junction.

14. **Antrostomus vociferus.** WHIP-POOR-WILL.— I recorded but one Whip-poor-will,— at Tumbling Run near Pottsville.

15. **Chordeiles virginianus.** NIGHTHAWK.— Quite common and pretty generally distributed.

16. **Chætura pelagica.** CHIMNEY SWIFT.— Occurs commonly throughout the region, seeming rather more abundant in the towns than on the mountains.

17. **Trochilus colubris.** HUMMINGBIRD.— A nest with two full-fledged young was found at Black Creek Junction, July 24.

Passing by the spot a few days previous my attention was attracted by the vicious attack of a Hummer on the head of a defenseless Catbird. This led to the discovery of the nest, situated on the branch of a pine tree about twelve feet from the ground. The only other points at which I observed this species were Hamburg and Harvey's Lake.

18. **Tyrannus tyrannus.** KINGBIRD.— Kingbirds were quite common throughout the region. I found a nest with three eggs at Pottsville, on June 30.

19. **Myiarchus crinitus.** CRESTED FLYCATCHER.— More or less local in distribution, being more common around Delano and Hazleton where dead trees are plentiful. At Pottsville I did not see them, though I noted several at Hamburg.

20. **Sayornis phœbe.** PHŒBE.— I have one record of the Phœbe from near Penn Haven Junction, where I saw one or two and during August. I also saw several near Audenried, in the western point of Carbon County.

21. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.— My most interesting find of the summer was a set of two eggs of the Olive-sided Flycatcher at Lumber Yard, five miles east of Hazleton, on July 4; constituting, so far as I can ascertain, the first positive record of the breeding of this species in the State.

I first noticed this species at Delano on June 18, when I heard its note but failed to identify it. After I had taken the nest and eggs and shot the female, on July 6, the male still stayed in the same locality for several days, uttering its loud note and seeming particularly troubled when I came near. The last I saw of it was at Delano, on July 27. When I was securing the nest both birds were particularly bold, especially the female, coming near me and protesting vociferously against my intrusion.

22. **Contopus virens.** WOOD PEWEE.— Generally distributed but not very common in the mountains.

23. **Empidonax minimus.** LEAST FLYCATCHER.— One heard at Hazleton and one at Mt. Carmel. At Hamburg I saw two or three pairs, and on June 4 took a nest from an apple tree about twenty feet from the ground.

24. **Cyanocitta cristata.** BLUE JAY.— Two or three seen near Penn Haven Junction, and one pair at Weatherly, and two or three at Rock Glen. During August I found them near Audenried.

25. **Corvus americanus.** CROW.— Fairly common throughout the region. As their breeding season was pretty well over when I was there, they seemed rather unsettled in their movements.

26. **Molothrus ater.** COWBIRD.— Several seen at Hamburg, June 16, and a flock of four or five at Pottsville, July 11. North of this I did not find them, very likely because the country was not to their taste.

27. **Sturnella magna.** MEADOWLARK.— Not found north of Schuylkill Haven, except at Nescopeck, where I saw one.

28. **Icterus galbula.** BALTIMORE ORIOLE.— One seen at Lumber Yard early in June, but as it was seen only once I do not consider it a breeder there. This species was common at both Hamburg and Nescopeck.

29. **Quiscalus quiscula.** PURPLE GRACKLE.— Quite scarce all through the mountains, being noted at Hazleton, Pottsville and Nescopeck, where, however, but a few were seen.

30. **Carpodacus purpureus.** PURPLE FINCH.— Quite generally distributed and fairly common on the mountains.

31. **Spinus tristis.** GOLDFINCH.— While common at Pottsville and also noted at Rock Glen and Nescopeck, this species was not seen elsewhere in the coal regions.

32. **Poocætes gramineus.** VESPER SPARROW.— Several seen at Pottsville and Hamburg but none farther north.

33. **Ammodramus sandwichensis savanna.** SAVANNA SPARROW.— Occurs commonly at Hamburg and a few at Pottsville where I found a nest with four half-fledged young and one unfertile egg on July 21.

34. **Spizella socialis.** CHIPPING SPARROW.— Common throughout the region.

35. **Spizella pusilla.** FIELD SPARROW.— Common throughout the region.

36. **Junco hyemalis.** JUNCO.— A pair were observed at Black Creek Junction about the middle of July.

37. **Melospiza fasciata** SONG SPARROW.— Common everywhere.

38. **Pipilo erythrophthalmus.** TOWHEE.— Common throughout the mountains, but I did not observe it at Pottsville during June or July. I saw them, however, in August in a spot not before visited, so they probably bred there.

39. **Passerina cyanea.** INDIGO BUNTING.— One of the commonest birds of this region. A nest with three fresh eggs, found July 14, at Pottsville seems a rather late record.

40. **Piranga erythromelas.** SCARLET TANAGER.— Several seen at Weatherly and near Penn Haven Junction, also one at Rock Glen.

41. **Progne subis.** PURPLE MARTIN.— I observed one pair several times in Hazleton.

42. **Chelidon erythrogaster.** BARN SWALLOW.— Pretty generally distributed, though not very common in the mountains, this being probably due to the few good breeding sites available.

43. **Clivicola riparia.** BANK SWALLOW? — On one occasion I saw three

or four Bank, or Rough-winged Swallows on the Black Creek near Penn Haven Junction. I cannot say which species they were, however. I also saw them at Nescopeck, but failed to procure specimens there either.

44. **Ampelis cedrorum**. CEDARBIRD.— Very common throughout the region. I saw a flock of fifty or sixty of this species at Delano, on June 1, and observed them flocking again early in August.

45. **Vireo olivaceus**. RED-EYED VIREO.— Generally common.

46. **Vireo gilvus**. WARBLING VIREO.— Several seen at Nescopeck, but at no other point.

47. **Mniotilta varia**. BLACK AND WHITE WARBLER.— Observed at nearly every place visited. I found this species with large young at Harvey's Lake, on June 9, while at Pottsville, on July 7, I found a nest of four young just ready to fly.

48. **Helmitherus vermivorus**. WORM-EATING WARBLER.— Noticed at Pottsville on August 11, in company with a flock of Black and White Warblers and Chickadees.

49. **Compsothlypis americana**. PARULA WARBLER.— A few at Harvey's Lake, on June 9. A nest which I found was suspended something over twenty feet from the ground, very like a Vireo's nest, from a crotch in a branch. The moss must have been gathered by the birds as there seemed to be but little of it on the tree where the nest was. It contained one egg.

50. **Dendroica æstiva**. YELLOW WARBLER.— Several were seen in Pottsville and one or two in Hazleton. I heard them singing steadily till about the end of July, when they ceased and were no more in evidence.

51. **Dendroica maculosa**. MAGNOLIA WARBLER.— I found one family at Pottsville.

52. **Dendroica pensylvanica**. CHESTNUT-SIDED WARBLER.— Much commoner on the top of the mountains than lower down. At Delano I found it breeding in the scrub oaks, and at Harvey's Lake I found a nest in the laurel.

53. **Dendroica virens**. BLACK-THROATED GREEN WARBLER.— Pretty generally distributed throughout the coal belt. I found it breeding at Pottsville and saw one or two families near Penn Haven Junction. I also saw it at Mt. Carmel and near Audenried, and found three or four at Rock Glen.

A nest, which I found at Pottsville on June 23, was situated on the limb of a chestnut tree about thirty feet up and was covered by grape vines.

54. **Seiurus aurocapillus**. OVEN-BIRD.— Pretty common throughout the region.

55. **Seiurus motacilla**. LARGE-BILLED WATER-THRUSH.—On June 16, at Hamburg, I found a nest of this species containing four young but a few days old. It was situated in a bank by a stream of running water.

This record is of some interest as bearing out the experience of others in finding the Water-Thrush breeding well up along our principal rivers at Delaware Water Gap and one or two other points.

56. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.— A common resident throughout, the region being perhaps more common on the mountains than lower down.

57. **Icteria virens.** YELLOW-BREASTED CHAT.— Found at Hazle Creek Junction, Hazleton, Morea and Mt. Carmel.

58. **Sylvania mitrata.** HOODED WARBLER.— Rather common at both Hamburg and Pottsville, but not extending north of the latter place.

59. **Sylvania canadensis.** CANADIAN WARBLER.— A pair seen at Delano, on June 29, and another at Hazle Creek Junction, June 19. Both pairs were seen in low damp ground and were feeding their young.

60. **Setophaga ruticilla.** REDSTART.— One family was seen at Pottsville and several individuals at Harvey's Lake.

61. **Galeoscoptes carolinensis.** CATBIRD.— Common throughout the region.

62. **Harporhynchus rufus.** BROWN THRASHER.— Generally disturbuted, but not common.

63. **Troglodytes aëdon.** HOUSE WREN.— Generally common, especially around Delano and Hazleton in the dead trees. I did not see them about Penn Haven Junction.

64. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.— Saw three or four at Mt. Carmel and one at Rock Glen.

65. **Parus atricapillus.** BLACK-CAPPED CHICKADEE.— A few seen at Pottsville, Hazleton and Penn Haven Junction.

66. **Turdus mustelinus.** WOOD THRUSH.— While pretty generally distributed, the Wood Thrush was rather more common at Pottsville and Rock Glen than further up the mountains.

67. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.— A pair observed near Pottsville and one also heard at Rock Glen, but I did not secure any specimens.

68. **Merula migratoria.** ROBIN.— Rather scarce all through the coal-fields.

69. **Sialia sialis.** BLUEBIRD.— On July 22 I heard three or four Bluebirds near Hazleton.

## FEEDING HABITS OF THE ENGLISH SPARROW AND CROW.

BY SYLVESTER D. JUDD.

IN 'The English Sparrow in America' (Bull. U. S. Department of Agriculture) Prof. W. B. Barrows has shown what a pest the Sparrow is. I wish to comment upon several of the hundreds of

interesting facts that Prof. Barrows has presented in such admirable form. First I shall speak about the destruction of dandelion seeds. In May, 1894, at Cambridge, Mass., and during the last two springs here in Washington, Sparrows have been observed eating dandelion seeds.

After the yellow petal-like corollas have disappeared, the flower presents an elongated, egg-shaped green body with a downy tuft at the upper end. It is in this stage of the flower cycle, that the dandelion suffers from the attacks of the English Sparrow. The bird removes several of the scales of the inner involucre by a clean cut close to the receptacle, thus exposing the plumed seeds, or, more properly speaking, achenes. He seizes a mouthful of them between the plume and seeds, and then by a cut of the bill the plumes are lopped off, while the seeds are swallowed. In many cases, especially when hunger presses, the trouble of removing plumes is not taken. The Sparrow generally drops a score of seeds in tearing open a flower, and usually leaves the few seeds that cling to the periphery of the receptacle. The mutilation caused by the Sparrow's beak can be detected until the flower stalk dries and falls.

On the 29th of last April, I picked every dandelion flower stalk from a circle six feet in diameter on the grounds of the U. S. Department of Agriculture, where the lawn had a week previous been yellow with the flowers. One hundred and thirty-five of the stalks showed the unmistakable mark of the Sparrow's bill. More than half of the dandelions that bloomed in April on the lawns of the U. S. Department of Agriculture were damaged by Sparrows.

Later in the season, Sparrows feast upon the seeds of crab grass (*Panicum sanguinale*), which grows in profusion about Washington. The seeds of another crab grass (*Eleusine*), not included in Prof. Barrow's list, were taken from a stomach in June, 1895. In early spring the Sparrow often may be seen eating the first tender blades of grass. I have also seen it eating the leaves of *Chelidonium majus*. In Cambridge and Washington the Sparrows often subsist to quite an extent upon the seeds of chickweed (*Stellaria* and *Cerastium*).

Along with hundreds of other observers I have seen Sparrows

causing heavy losses in oat and wheat fields, pulling elm and peach blossoms to pieces, and flocking into the horticulturists' precincts to feast upon cherries, grapes, raspberries, and other fruits. Like most of our common birds the Sparrow derives a part of its sustenance from the animal world. Prof. Barrows has shown that insects of several orders, representing dozens of families, and hundreds of species, have been eaten by the Sparrow. Insects that fly in a zigzag course are more liable to escape birds than those that fly straight away. During August, 1895, in Washington, I have seen on several occasions a Sparrow pursue, capture, and eat piecemeal a cicada, which is a swift insect that takes a beeline course. On the other hand it is only after many unsuccessful attempts that a moth or flying grasshopper is caught in its hither and thither course. Common flies and wasps dodge an enemy. The same is true of the dragonfly (*Libellula*). I remember seeing a Sparrow dart from above and then from below, and then flutter up at one of these insects on the 'College yard' in Cambridge. Finally, after five minutes of fruitless attempts, the Sparrow, more by chance than skill, struck the dodging insect which fell disabled to the ground.

The Washington Sparrow finds it more profitable to breakfast on the insects that have been killed or disabled by electric lights. In the early morning during April and May he comes to the lamps to eat May beetles, and small predaceous ground beetles (Carabidæ). The entomologist, who visits the lamps after the Sparrows, finds only the hard wing covers (elytra) of the beetle he had hoped to collect. In spite of the insectivorous habits the Sparrow is branded a nuisance, because he pillages crops, disfigures buildings, and disturbs the peace by his never flagging, monotonous chirp.

Prof. Barrows, beside exposing the true character of the English Sparrow, has also dealt with the Crow in an economic manner. On page 22 of Bull. 6, U. S. Department of Agriculture, he describes a 'roost' at Arlington, Va., where every winter night over 100,000 Crows sleep. About their lodgings were found pellets which had been disgorged. These pellets consisted of seeds held together by sand. The most common of these seeds were,—dogwood, sour-gum, smilax, red-cedar, poison ivy, poison sumach,

and harmless sumach. The Crow takes a large proportion of corn during the winter, and may often be seen in large flocks visiting corn stacks. The quantity of insects eaten during the winter is small, for the Crow during the cold weather subsists principally upon vegetable matter.

Being anxious to learn how Crows glean a living when the ground is snow-covered, I went to Arlington, Va., on the 15th of last December. A flock of fifteen Crows was on the ground at the edge of the wood on the south side of a hill, where the snow had melted enough to leave bare spots as large as saucers. The dusky fellows were busily overturning leaves, and picking up something. They arose as I came quite near, and the several that cawed were Common Crows (*Corvus americanus*). The ground where the birds had been looked as though it had been raked. Beside turning over the leaves, the Crows had picked into the earth. Upon turning over some leaves that had not been disturbed, I found berries of dogwood and sour-gum, and living insects. The berries at this time of year do not hang on the trees. Although no insects were found where the Crows had searched, under several leaves that had not been disturbed I found several spiders (*Drossus*), leaf-hoppers (*Proconia*), ants (*Camponotus malleus*), a ladybird (*Coccinella 9-punctata*), a harlequin cabbage bug (*Murgantia histronica*), and several smaller bugs. If the Crow were less wary it would be much easier to learn how it obtains insect food in winter. This same day I saw dozens of Crows in red cedar trees feeding upon the berries.

On March 15 I had another opportunity of seeing how Crows find food when the ground is covered with snow. On the southern side of the Washington 'Zoo,' which is a picturesque depression among rugged hills, was a field with several snow capped manure heaps which the crows had been making tracks about. In many places the snow, which was two inches deep, had been brushed away, and a shallow excavation dug in the frozen manure. Here apparently the only food was a large number of plump oat seeds which were filled with a soft white mass. I hope next winter to watch Crows at meal times when the ground is covered with a foot or more of snow.

There is much to be done in the study of the feeding habits

of our commonest birds. Every one knows in general what birds eat during the winter, but few can tell you whether the Junco takes any insects on the warmer days of January or not, or just what the Chickadee is eating when he hangs head downward from a lichen-grayed branch. We need more observers who go out with the spirit of the writer of 'The Brown Thrush in Eastern Massachusetts.'

## SUMMER BIRDS OF NORTHERN ELK COUNTY, PA.

BY WILLIAM L. BAILY.

PUBLISHED lists of the summer birds of Elk, McKean, and Potter Counties, Pa., are so limited[1], it is hoped that the following report may be of some aid for comparison in our recent efforts to establish more accurately the breeding ranges of the birds of Pennsylvania, which must be based principally upon a series of careful lists and notes taken during the breeding season in localities scattered all over the State.

Few of us seem to have had the opportunity of visiting, for any length of time, these counties, and although two weeks was the limit of my stay, from the 18th of June to the 2d of July, 1894, I was enabled, on account of fair weather, to give almost my entire time to field work, so that my list ought to be fairly representative. John Reese was with me on most of my trips and proved a most useful guide and companion.

The table-land which spreads over a large portion of northwestern Pennsylvania, and especially that of McKean, Elk, and Potter Counties, is on an average almost as high as the crests of the mountains running diagonally across the State, the great topographical difference being that the table-land, which is separated from the mountains principally by the west branch of the

[1] "List of Birds observed near Bradford [McKean Co., Pa.]" by James A. Teulon, Quarterly Journal Boston Zoölogical Soc., 1883, p. 47.

Susquehanna, is generally flat, depressed by streams winding through it, not as a rule over 600 feet deep, while in the Appalachian system the valleys are rolling and the mountains rise in peaks and ridges high above them. Hence we find the fields, pastures, and orchards occupying the lowlands in the mountainous district, while in the northwestern part of the State they are on the high ground almost on a level with the ridges of the Appalachian Mountains. Such a marked difference in the contour of the two localities in question is sufficient for considerable faunal variation.

As to temperature, the severe weather continues so late in the spring that frost occurs sometimes well into May, and in 1894, on the first of June, the apple crop was so nipped that it was rendered practically useless. This condition is unfavorable to the advancement of many of the southern birds, which, however, venture far up into the mountains.

On the northern border of Elk County, about 2,200 feet above sea level, one of the highest points of the table-lands west of the Alleghanies, yet among fields, orchards, and pasture-land, is the enviable home of Captain A. G. Clay, from early May to the end of November, and in his hunting years, not many snows ago, his fires were kept burning far into the winter months as well. In this very vicinity the Wild Pigeon (*Ectopistes migratorius*) bred for the last time in any great numbers, and only a scattered few, to the Captain's knowledge, have been observed during the past thirteen years.

Twenty years ago the hunting in Elk County was worth speaking of, but railroads for the purpose of developing the oil, coal, and lumber are multiplying every year and the great hemlocks are fast disappearing, though not materially on the Captain's land of several square miles.

Within one hundred yards of his house is a pond not 200 feet long, the only one in the locality, and during migrations nearly every eastern species of Duck that flies overland, besides a variety of Gulls, Herons, Rail and Snipe, drop to rest and feed on this pond. The Captain gave me a list of 74, mainly game birds, most of which he has taken on or near this pond.

'Upland,' the name of Captain Clay's property, adjoins the McKean County line within half a mile of his house, and only a

few hundred feet beyond is Williamsville, about 550 feet lower in altitude and at the junction of Five and Seven Mile Runs, tributaries of the east branch of the Clarion River. I covered most of the high ground for a mile or two around the house, and made numerous trips on Five and Seven Mile Runs, on the east branch of the Clarion into McKean County, up Straight Creek four miles to the southeast, and on Rocky Run, a feeder of the west branch of the Clarion, five miles to the southwest, not far from Wilcox. At least two-thirds of the high ground was cleared and largely cultivated, just the place for Larks, Savanna, and Grass Finches. The Catbird, Indigo Bunting, Chewink, Chestnut-sided Warbler, and their friends occupy the brush and raspberry patches on the edge of the woods; and the Kingbirds, Goldfinches, and Cedarbirds abound in the apple orchards, which are adjuncts of every farm.

Most of the streams rising on high ground descend gradually into sheltered wooded ravines, Straight Creek being especially darkened by tall hemlocks, beech and maples, making it one of the coldest and most beautiful streams in the neighborhood. Here the Winter Wren, Solitary Vireo, Blackburnian and Canada Warblers, Water Thrush, Hermit Thrush and other typical Canadian species were most numerous.

But one swamp was met with, at about 2,000 feet; there the Red-wings, Woodcocks, and Song Sparrows revelled, and where it extended into the woods, Warblers and Woodpeckers were common. Here also were found the Saw-whet Owls. There seems to have been quite a migration between July 25 and 27, a Field Plover, Summer Yellow-legs, and a Green Heron being taken by John Reese between these dates. A Spotted Sandpiper and a few Woodcocks were the only breeding water birds that came under our notice.

With regard to the trees, the hemlocks in their primæval state are still plentiful, and, when they are in great numbers, harbor many a cool spot, almost entirely excluding the sun, and must afford considerable encouragement to the Canadian element. Sugar maples, black and white birch are very common; there are only a few white pines here and there, but beeches are abundant, serving in days gone by as the principal food of the Wild Pigeon, the young being fed almost entirely on the curd of the beech-nut.

The avifauna of Elk and McKean Counties seems to have a decided touch of the Canadian element, judging not simply from the occurrence of certain northern types, but on account of the number of the birds of each species, the first eight of the following list being abundant; *Junco hyemalis*, *Dendroica cærulescens*, *Dendroica maculosa*, *Dendroica blackburniæ*, *Seiurus noveboracensis*, *Troglodytes hiemalis*, *Turdus aonalaschkæ pallasii*, *Sylvania canadensis*, *Vireo solitarius*, *Certhia familiaris americana*.

All but the first and last of the following ten were, I think, generally more common than they are in the Alleghanies: *Nyctale acadica*, *Sphyrapicus varius*, *Empidonax minimus*, *Carpodacus purpureus*, *Ammodramus sandwichensis savanna*, *Habia ludoviciana*, *Dendroica pensylvanica*, *Dendroica virens*, *Parus atricapillus*, *Turdus fuscescens*.

Another feature in support of my remark, was the apparent absence of all of the typical Carolinian, and more southern species, many of which are occasional or common in the Alleghanies, such as Dove, Quail, Acadian Flycatcher, Orchard and Baltimore Orioles, Cardinal, Louisiana Water-Thrush, Chat, Black-capped Titmouse, Brown Thrasher, Carolina Wren and others.

I should not omit to note as an additional Canadian element the common occurrence of *Limenitis arthemis*, a butterfly more common in the Adirondacks of New York.

As the title of this paper indicates, I shall only include in the appended list the birds which came under my personal observation unless especially noted otherwise. Following is the complete list:

(One *Ardea virescens*, the Green Heron, was taken July 25 by John Reese and may have been migrating. There were very few suitable places for Herons.)

1. **Philohela minor.** WOODCOCK.— Several in an open grass swamp close to the road; were said to have been plentiful several years ago.

2. **Actitis macularia.** SPOTTED SANDPIPER.— One on July 8 taken by John Reese on Seven Mile Run; identified.

3. **Bonasa umbellus.** RUFFED GROUSE.— One cock, and June 30, a hen with her brood were seen. Grouse are getting fewer every year.

(Wild Turkeys, I was informed, had not been seen since 1891, when one or two were taken in the fall. Quail have been taken but are very rare. The Wild Pigeon has not been seen since 1882, except one or two

at a time. Elk, McKean, Forrest, and Potter Counties are noted for their beech trees and no doubt there was no place in Pennsylvania where the Wild Pigeon bred in greater numbers.)

4. **Accipiter cooperi.** COOPER'S HAWK.— Only one was seen.

5. **Buteo borealis.** RED-TAILED HAWK.— Several; one nest in a large black birch about 70 feet from the ground.

6. **Falco sparverius.** SPARROW HAWK.— One seen June 19.

7. **Syrnium nebulosum.** BARRED OWL.— One taken July 9 by John Reese; specimen identified.

8. **Nyctala acadica.** SAW-WHET OWL.— There are very few breeding records in Pennsylvania of this bird. Two were taken, both in the young 'Kirtland' plumage, one June 28, roosting about 18 inches above the ground in a small hemlock in a rather open swamp. The other was taken a week or so later in the same locality.

9. **Bubo virginianus.** GREAT HORNED OWL.— Five, in a secluded spot on Straight Creek, young and old together.

10. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO.— One only seen, close to the road on the edge of the hemlocks.

11. **Ceryle alcyon.** KINGFISHER.— One on the Clarion, and several on Straight Creek.

12. **Dryobates villosus.** HAIRY WOODPECKER.— Common; especially in the tall open wood where the hemlocks had been cut off. There is plenty of food and shelter for the Woodpeckers in the abundance of dead stumps, both standing and lying on the ground.

13. **Dryobates pubescens.** DOWNY WOODPECKER.— Common.

14. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.— Fairly common; several were taken, generally in open woods among the fallen logs, and close to the streams.

15. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— Several seen in same woods with the Yellow-bellied on the Clarion, and in one or two other places.

16. **Colaptes auratus.** FLICKER.— Common.

17. **Chætura pelagica.** CHIMNEY SWIFT.— Common; said to build in barns on rafters, and roost in trees in this locality during migration.

18. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.— Common around houses and in the deep woods (reported to have been seen, fifty at a time, when the orchards are in bloom).

19. **Tyrannus tyrannus.** KINGBIRD.— Common as I ever saw it anywhere, in the orchards and along the roads.

20. **Sayornis phœbe.** PHŒBE.— Common; especially around the house.

21. **Contopus virens.** WOOD PEWEE.— Common in open woods stripped of the hemlocks.

22. **Empidonax minimus.** LEAST FLYCATCHER.— Very common among birch, maple, and beech. Three nests were found, varying considerably in their construction and position, and a female was so tame

that I stood talking within eighteen inches of the bird on the nest for fully five minutes.

23. **Otocoris alpestris praticola.**— PRAIRIE HORNED LARK.— A very common, almost abundant breeder. Seen along roads and fences and ploughed fields.

24. **Cyanocitta cristata.** BLUE JAY.— Common; principally on the edges of the woods or in open timber.

25. **Corvus americanus.** CROW.— Only a few pairs were seen, partly, perhaps, on account of the scarcity of grain.

(*Dolichonyx oryzivorus*, the Bobolink, was seen by John Reese July 17, and one or two were taken a few days later, probably migrating.)

26. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.— Common; several were found near the pond breeding.

27. **Sturnella magna.** MEADOWLARK.— Noticeably less numerous than in the east.

28. **Quiscalus quiscula æneus.** BRONZED GRACKLE.— Common, but not in large numbers; several nests in tall pines in front of Captain's house; flocking about June 30.

29. **Carpodacus purpureus.** PURPLE FINCH.— Several males, singing in low maples, especially on edge of woods, and one, showing anxious discontent, caused me to waste considerable time vainly looking for his nest.

30. **Spinus tristis.** GOLDFINCH.— Common; several nests found, in all cases close to civilization.

31. **Poocætes gramineus.** GRASS FINCH.— Abundant; found at least six nests in open, dry fields.

32. **Ammodramus sandwichensis savanna.** SAVANNA SPARROW.— Abundant in the fields near barns. I hunted many times in vain for their nests.

33. **Ammodramus savannarum passerinus.** GRASSHOPPER SPARROW. — Observed in two different fields, about two miles apart, near farm houses.

34. **Spizella socialis.** CHIPPING SPARROW.— Abundant; a number of nests found; some in orchard trees and three were found in one thorn tree with two Kingbirds' nests.

35. **Spizella pusilla.** FIELD SPARROW.— Common; several nests, generally about three feet from ground, in raspberry bushes.

36. **Junco hyemalis.** SNOWBIRD.— Very common in the open woods, but more generally on the edge of the woods. A number of nests were found, all on low road-side banks, three to five feet high, in the moss or beside a root.

37. **Melospiza fasciata.** SONG SPARROW.— Abundant; five or six nests, both on ground and in bushes.

38. **Pipilo erythrophthalmus.** CHEWINK.— Common only in a few spots where several pairs seemed to associate in large open clearings covered with a tangle of underbrush and brambles.

39. **Habia ludoviciana.** ROSE-BREASTED GROSBEAK.— Rather common; several pairs seen in tree-cleared places where there were plenty of tangles and a small maple now and then to perch upon.

40. **Passerina cyanea.** INDIGO BUNTING.— Very few were noted, not more than three during the whole two weeks.

41. **Piranga erythromelas.** SCARLET TANAGER.— Several single birds and one pair in tall maple and beech grove. Not seen among the hemlocks.

42. **Chelidon erythrogastra.** BARN SWALLOW.— The only Swallow seen; common around houses, six nests under outside eaves of the Captain's house, scattered, however, and not in colonies as the Eave Swallows build. A singular fact came to note, viz.: A female was found dead on her nest resting in a most natural position and was probably frozen during the frost on the 1st of June. The skin was dry and hard.

(One *Petrochelidon lunifrons*, Cliff Swallow, was taken by John Reese August 3; specimen identified; possibly a migrant. Breeds in Columbia County.— R. Kester.)

43. **Ampelis cedrorum.** CEDAR BIRD.— Abundant; several nests all built unusually low; one, one and one-half inches in diameter, built of beard moss (*Usnea*), was five feet high in a birch.

44. **Vireo olivaceus.** RED-EYED VIREO.— Abundant; singing in the woods everywhere except in the primæval hemlock, where the woods are very quiet.

45. **Vireo solitarius.** SOLITARY VIREO.— One pair with young just out of nest, on the edge of the deep hemlock at the mouth of Straight Creek. Found abundant by Dr. Dwight on North Mountain (Auk, IX, 1892, p. 138), and I should have expected it to be more common here.

46. **Mniotilta varia.** BLACK AND WHITE WARBLER.— Uncommon; only two or three were seen in second growth of hemlock, maple, etc. From several records it appears that the bird is common or abundant in the second hemlock growth of the Alleghanies (Stone, Dwight, and Todd).

47. **Compsothlypis americana.** PARULA WARBLER.— One female with one young bird, seen among small trees on a stream.

48. **Dendroica æstiva.** SUMMER WARBLER.— Several seen; one pair building in the orchard. This bird does not seem to venture much into the woods.

49. **Dendroica cærulescens.** BLACK-THROATED BLUE WARBLER.— Common in the woods where hemlock had been cut, as well as on the edges of the deep hemlock woods. It was very evident that the females were keeping close to their nests, as a great many males were seen, always singing, as if to assure their better halfs that they were near at hand. The same could be said of the next four varieties, only one female being seen to ten males.

50. **Dendroica maculosa.** MAGNOLIA WARBLER.— Common; more so if anything than the preceeding. One nest was found in a tiny wild

cherry, about 3 feet high, at the side of a log road in a deep wood of birch, maple, and oaks, and some second growth hemlocks. The female sat so close that I touched the tree before she flew. This little bird, as it covered an almost invisible nest of hairlike grass, was one of the prettiest pictures in my experience.

51. **Dendroica pensylvanica**. CHESTNUT-SIDED WARBLER.— Common; more females of this species were seen than either of the preceding two, but nearly always in overgrown, open places.

52. **Dendroica blackburniæ**. BLACKBURNIAN WARBLER.— Common; principally high up in the hemlocks near the streams; only one female noted. The males were almost invariably singing.

53. **Dendroica virens**. BLACK-THROATED GREEN WARBLER.— Common; generally in the same environment as the last species.

54. **Seiurus aurocapillus**. OVENBIRD.— Common in the dry upper woods.

55. **Seiurus noveboracensis**. WATER-THRUSH.— Common; especially on the clear streams not poisoned by the chemical works or tanneries, where only one was observed. One nest with eggs under the root of a tree, and a number of just fledged birds were seen. This bird begins to get common just west of the Alleghanies.

56. **Geothlypis trichas**. MARYLAND YELLOW-THROAT.— Common in its usual haunts.

57. **Sylvania canadensis**. CANADIAN WARBLER.— Common; singing constantly; seen less among the hemlocks than elsewhere, except on Straight Creek.

58. **Setophaga ruticilla**. REDSTART.— Only one was seen, this on the Clarion, and it was not observed in the mountains by either Messrs. Dwight, Stone, or Todd, but Warren speaks of it as being most common in the higher mountain regions, mentioning especially McKean, Potter, Sullivan, Centre, Blair, Lycoming, Crawford and Erie Counties. I found it common and several nests in very open places at Point Pelee, on the warm, flat Canadian shore of Lake Erie where the Summer Warbler, Baltimore Oriole, Brown Thrasher, and five Swallows, were abundant, a much more mild environment.

59. **Galeoscoptes carolinensis**. CATBIRD.— Very common, a number of nests being found. There happens to be a number of places on the southeastern slopes of some of the rolls, covered with raspberry bushes, well adapted for some of the more southern varieties, but few of them seem to take advantage of the fact.

60. **Troglodytes aëdon**. HOUSE WREN.— Common in cleared woods as well as around houses.

61. **Troglodytes hiemalis**. WINTER WREN.— Abundant in the tall open woods as well as in the cool hemlocks near the streams; most common on Straight Creek, which is by far the coolest in the locality.

62. **Certhia familiaris americana**. BROWN CREEPER.— Not common; only about three seen, which were very hard to locate, and it may be

that we missed others, as they should be common here if anywhere. I found a nest at Eaglesmere, Sullivan County, Pa., in 1890.

63. **Sitta carolinensis.** WHITE-BELLIED NUTHATCH.— A few pairs, one near the house.

64. **Parus atricapillus.** BLACK-CAPPED CHICKADEE.— Abundant in all kinds of open woods and in trees along the road.

65. **Turdus mustelinus.** WOOD THRUSH.— Not seen at all the first few days where the Hermit was abundant. One was taken on Straight Creek, apparently very much out of place, where the wood was quite dense and damp. A few others were seen.

66. **Turdus fuscescens.** WILSON'S THRUSH.— Only one on the hillside above Straight Creek, acting very much as though a nest was near.

67. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.— Abundant; four or five nests, three on mossy banks at the side of the road; two I discovered from a wagon.

68. **Merula migratoria.** ROBIN.— Very common all over the open upland and near the clearings in the valleys.

69. **Sialia sialis.** BLUEBIRD.— Common around the farms.

## SUMMER BIRDS (JULY 15–AUG. 13, 1894) OF THE RHINE.[1]

BY RALPH HOFFMANN.

THE interest and pleasure which most naturalists experience in making field observations is often a reward for their somewhat tedious labors in other branches of the science to which they may devote their time. Especially when one is so fortunate as to carry his opera-glass into fresh woods and pastures new, the increased interest and heightened pleasure amply repay him for the discomforts of the journey. To me, in my capacity of amateur ornithologist, there has come a rather large share of these lighter labors, so that my slight connection with ornithology has proved, in a way, to be all play and no work. I hoped, therefore, when I looked forward last spring to a summer in Germany, to note down something which might be of interest to the members of the

[1] Read before the Nuttall Ornith. Club, Cambridge, Mass., Dec., 1894.

Club, and as I look back now to the excitement and delight which accompanied the study of so many new birds, I trust that I can share these pleasures in some degree with those whose recitals of labors in other fields have so often interested me.

In order to give a degree of coherence to the notes which I have to present, I shall try to group them about the stream which most travellers ascend for other study than that of its fauna, but first I shall sketch briefly the characteristics of twelve or fifteen birds which formed the staple diet, the daily food, so to speak, of my field observations. These sketches are slight, as I have made very little attempt to supplement my own notes by consulting the books; I hope, however, they will add a little color to the subsequent pages.

### Blackbird (*Turdus merula*).

When Bottom sings in the enchanted wood,

> "The ouzel-cock so black of hue
> With orange-tawny bill,
> The throstle with his note so true,
> The wren with little quill,"

he enumerates the familiar songsters of England, and heads his list with the Blackbird. From the time of Shakspeare the Blackbird, the Wren, and the Redbreast are the familiar birds of English literature, so that with the exception of the Lark, the Nightingale and the Cuckoo, there were no birds I was more anxious to see.

July, however, is an even more inauspicious month in Europe than here; so many of the birds are early breeders. The Cuckoo and the Nightingale were silent, and to me invisible, and still remain mere names. With the Blackbird or Black Thrush, as the Germans call him, I was more fortunate. He was, if not so numerous as our Robin, quite as ubiquitous, whistling from the gardens and parks of the cities, and from the hillsides and glens of the country. His length is the same as that of his cousin, our Robin, and he suggests this bird in many ways. He has the same way of running forward, and then drawing himself up, and he plants his feet and pulls at an angle-worm in precisely the same way. He scratches more in the leaves than our bird, showing in this his

turdine affinities, and he has the Hermit Thrush's trick of raising his tail sharply after alighting. The young have brown backs and reddish streaked breasts, so that they suggest the Robin still more strongly.

The Blackbird's song is bright and invigorating; I heard it more from single birds than from choruses. Sometimes as the singer sat on the spray of some tree on the hillsides, the disconnected and vigorous phrasing suggested the song of the Brown Thrasher. The nest is placed in bushes instead of in trees, and the bird is more truly resident in Germany than the Robin is in Massachusetts, the northern birds joining their brethren of Central Europe for the winter.

### Black Redstart (*Ruticilla titys*).

One of the most characteristic and familiar birds of Germany is the Redstart, a bird related, not to its American namesake, which it resembles very slightly, but to our Bluebird. In the domestic economy of German Nature, it seems to take the place of the Bridge Pewee (*Sayornis phœbe*). In Germany I found the Black Redstart by far more common than the Black-throated, the commoner British species, though I saw the latter not infrequently. It may be of interest to hear, on the authority of Mr. Saunders, that the male acquires his black breast by the wearing off of the gray tips to his feathers, as in the case of the Bobolink.

The Redstart haunts gardens and yards, flying constantly to the garden walls or house roofs, where it bobs at intervals like a Winter Wren. Its food consists of insects, which it pursues on the wing with considerable dexterity.

The Redstart arrives and breeds early and I failed to hear the song, which to the German villagers heralds the advent of spring.

A nest of this bird was shown me, on a shelf over some cellar stairs. To reach it the bird had to fly from the garden through the back door, which the occupants of the house kept open for it.

The German name, 'Rothschwänzchen', or Red-tail, corresponds to the English, Redstart, from the A. S. *steort*, a tail.

### Redbreast (*Erithacus rubecula*).

This bird, so endeared to the British heart, rears his brood in clearings and in thickets; he is retiring rather than shy, and several that I saw were in yards and about dwellings, to which, as is well known, the bird resorts in winter for crumbs and broken meat. In a garden in Heidelberg I saw one frequently, hopping about among the tables disputing with Chaffinches for the fallen crumbs.

The Red-breast keeps to the ground much more than his relatives, the Redstarts, but like them he has a trick of flirting his tail and courtesying when observed.

### The Tits (*Parus*).

Europe is fortunate in the abundance of these cheerful and familiar birds. We are thankful all winter for our Chickadee, but in Germany, I was assured, it was no uncommon sight to see, in winter, four species, all picking at the same bone or candle, suspended for their use. I found six species in all, four of which were generally distributed and common.

The commonest was the Blue Tit (*P. cæruleus*), a charming and lovable bird, richly colored and active as a squirrel. I found an apple tree on one occasion, which was, so to speak, infested with Blue Tits; they hung to the smaller twigs, pecked at the leaves, and gleaned along the branches.

Two other species, which are often associated, are the Coal Tit (*P. ater*), and the Swamp Tit (*P. palustris*). These two and the Blue Tit, are smaller than our Chickadee, hardly larger in fact than Kinglets. In winter they are everywhere, but in summer the Coal Tit seems to prefer coniferous woods. These species are nimble and noisy, prying out insects from the bark, hammering open seeds, and convoying through the woods flocks of Kinglets, Creepers and other birds.

The longest and most sedate of the family is the Great Titmouse (*Parus major*), half an inch larger than our Chickadee. All four of these species are loquacious and their notes are numerous.

Many of them suggest the Chickadee, especially his *tee, dee dee,* and the *turre day* notes, but I heard nothing resembling his song.

### Wren (*Troglodytes parvulus*).

In hedges and thickets, in fact in just such situations as a Winter Wren would choose on migration, skulks the Hedge-king, as the Germans call him. The Wren is a resident species; he was still singing freely in August, and I found the song hardly distinguishable from that of our Winter Wren.

### White Wagtail (*Motacilla alba*).

This is one of the most characteristic birds of Germany, and I suppose, of the Continent generally, and in England a closely allied form is a conspicuous member of the avi-fauna. In the fields, especially when ploughed, in the meadows and in the village streets, this bird walks daintily about, or takes a short quick run after his insect prey, his long tail nicely balanced and constantly oscillating. He flies often to the ridge-poles of houses, tops of posts or other conspicuous positions, and one whom I found on the Drachenfels, flew to the very top of the ruined tower. Nesting is early with the Wagtail, and in July the young were following the parent birds about the streets, eager for food. The period of song is said to be very short, and I heard nothing but a few call or alarm notes.

The Wagtails were flocking in August, but they remain in considerable numbers throughout the winter.

### Swallow (*Hirundo rustica*).

For any readers of Gilbert White no European birds possess more interest than the Hirundinidæ, a term which, in his day, included the Swift. No suspicion crossed the good rector's mind that, one day, the Hummingbirds would wage on the Swallow family fierce osteological war for the possession of this bird.

The Swallow was one of the first land birds that I saw in Europe, and I hardly ever lost sight of him and his kindred. The call note, the low song, often given from the ridgepole, and

the marvelous dexterity of the Swallow proper, the Country Swallow, to translate his Latin name, reminded me at every turn of the Barn Swallows, which I had left behind me. The specific name is, however, somewhat misleading, for the Swallows haunt not only the grassy meadows, but the smaller towns as well, where they are conspicuous in all the paved streets. They beat the squares and gutters as regularly as a Marsh Hawk does a meadow, flying up and down, sometimes hardly a foot above the stones, turning the corners and coming down the other side, in and out among the people and off at last to the nest. Swallows breed in any sheltered corner, often in chimneys, whence the German name, Smoke Swallow. I observed one passing to her nest through a hole in a shed door.

They linger till September or October, and gather in great flocks utilizing the telegraph wires, as with us, till a favorable night for their departure. Their return in April has long been connected in proverb and song with the approach of warmer days.

### Martin (*Hirundo urbica*).

This is a characteristic bird of the towns wherever the eaves of buildings, preferably of stone, offer him a covering for his cupshaped nest. I found them also in the mountains, where there was too little grass-land for the Swallow. The Martin is gregarious, and the hotels fronting on the Rhine were often tenanted by colonies of one or two dozen. The birds avoided the street, however, and hawked over the river, where their glossy backs and white rumps flashed in and out among the plain brown backs of their cousins, the Bank Swallows. Their note is a single rough monosyllable, *spritz*, suggesting that of the Cliff Swallow. They were still feeding young in the nest, August 8, evidently the second brood.

### Chaffinch (*Fringilla cœlebs*).

This handsome and confiding bird was as characteristic of the village street as either the Wagtail or the Redstart, and was also common in every bit of woodland. The parks and groves resounded, in early July, with his cheerful and vigorous song,

resembling, to a considerable degree, that of the Purple Finch, though perhaps a trifle stronger. In the streets and in the roads the Chaffinch picked up seeds, insects, or fallen refuse.

In an open air restaurant at Heidelberg, I amused myself by throwing crumbs to the Chaffinches, who approached often to within a foot or two of my chair, but their bread was often snatched from their mouths by the more vigorous, if less welcome Sparrows.

At evening the parks or open spaces in the cities resounded with the call notes of this bird, *fink*, *fink*, and a peculiar *skree*, *skree*. From their call note comes their German name, 'Finke', and the English, Finch.

They are resident, and for part of the winter the males separate from the females.

### Yellow-hammer (*Emberiza citrinella*).

This is a bird of the fields and hillsides, especially in the neighborhood of farms. He feeds on insects and in winter on seeds. He is not shy, and not as restless as the Chaffinch. The Yellow-hammer was perhaps the freeest singer in July, and was still singing in August; in fact he reminded me of the Indigo-bird in his fondness for hot exposed situations, railroad embankments and even telegraph wires. Everywhere his deliberate song rose at regular intervals through the quivering air. The song is not loud but carries a surprising distance, and has something of the Grasshopper Sparrow's quality. It may be imitated by the syllables *zi, zi, zi dräh.*

The bird nests near the ground and raises two broods. He is a winter resident.

### Skylark (*Alauda arvensis*).

The Lark and the Blackcap were still in full song in the middle of July, though both ceased singing in August. The grainfields of the Rhine and Neckar valleys stretched in what seemed to my New England eye a tremendous expanse of yellow waves. Among these, from morning till night, the Larks rose, sang and descended

to their little domains in the wheat. The descent is gradual till the bird nears the ground, when he darts with great speed into the cover. When feeding, the bird walks slowly, and nods his head at each step.

The Lark is one of the most numerous of European birds, but notwithstanding his two broods, that he withstands his thousand enemies is a mystery. His habit of nesting on the ground and in the cornfields exposes him to the attacks of many animals and to the mischance of an early harvest. During migration, which is accomplished in vast flocks, he suffers severe loss from netting, but holds his own and returns each March, at the first sign of spring, to his chosen field.

### Swift (*Cypselus apus*).

The common Swift of Europe I found everywhere, from Holland to the interior of Germany, but especially abundant on the Rhine and in Nuremberg, where the fortress was besieged by a screeching multitude. The bird is an inch and a half longer than our species, and the presence of a well shaped tail, and the long recurved wings make him far more dexterous in the air. His flight is rapid, and he turns after his insect prey as swiftly as a Swallow.

The note is a curious screech, fine and rasping, resembling a bat's squeak. This the Swifts utter sharply, as they drive past in twos and threes, and sometimes, if they come close, the effect is startling.

The Royal Palace at Amsterdam was a favorite breeding place of the Swifts, who had built their rude nests of straw in the stone gargoyles, or in niches along the sides of the building, nor had their excrement added anything to the appearance of the somewhat unpretentious structure. In Nuremberg, the crevices in the ruined wall surrounding the fortress were full of nests, and at evening as I walked along the wall, the moat was full of screeching 'devillings' as the English call them. Their German name is 'Mauer Schwalbe' or Cliff Swallow.

By August the Swifts had almost entirely left their breeding places, and a few stragglers alone remained along the Rhine.

These then are the birds which on a summer day in Germany one cannot fail to see. How they are distributed, in what haunts, and in what numbers, how they and their rarer kindred enter into the pictures of Rhine scenery, I shall try to show by the following notes.

My time on the Rhine was divided between two points on the upper Rhine, Bonn and St. Goar, and a short trip along the sluggish waters of its lower course.

The first German soil that I trod, after I shook the dirt of Cologne off my shoes, was that of Bonn, where I spent Sunday and Monday, July 14 and 15. I was impatient to get into the fields, and taking a ferry Sunday morning, swung slowly across the stream, towards the opposite bank, where a low range of vineclad hills formed the outposts of the Siebengebirge. The familiar harsh note of the Bank Swallow, the *skreeing* of Swifts, and the cry of the Martins which I heard here, proved the constant attendants of my journey along the river.

In the fields which lay along the opposite bank, my first Skylark flew to the ground almost at my feet, with a note which suggested that of the Shore Lark. A moment later I heard one singing overhead. The song reminded me in quality of a Bay-wing's (*Poocætes*), but the singer's height and the length of the performance made it fairly inspiring. A slight disappointment which I felt at first, soon wore off and the song grew to have a great charm for me, before the gathered harvests made the singer a silent gleaner among the stubble. In a neighboring furrow, I made another acquaintance, destined to be an almost inseparable companion of my travels. This was a White Wagtail, who was picking his way over the upturned soil, walking with dainty steps, and balancing his long tail with a skill born of much practice.

The chaussée lay white and hot under the fierce sun, so I turned off past a gravel-pit, where Bank Swallows were breeding, to a little hill, the 'Finkenberg', formed, like the rest of the Rhine banks, of loose shingly stone, and covered with a sparse growth of small oaks. Here my scanty knowledge of European birds soon proved insufficient to identify the small restless creatures which eluded observation among the leaves, or to trace to their source the varied notes which issued from the thickets and

coverts. One songster in particular led me a long and fruitless chase, but I was more fortunate when I heard him again the next morning. At the foot of the hill, when I descended on the other side, I found a garden and orchard through which ran a brook. This seemed a favorable place for observation and so it proved to be. Several Flycatchers darted from their perches, to return with their booty; Brown Creepers climbed the trunks of the apple trees, whispering to each other as stridently as they do here in winter, and differing apparently from ours only in the lack of a trinomial name. They were convoyed too, as ours are, by Titmice, larger and handsomer than the Chickadee, but very similar in habits. On the garden walls or on the roofs of the houses sat Redstarts, fine bluish gray birds with brick red tails, which they snapped like Phœbes. From the vineyards and from the hillsides came the fine, thin notes of the Yellow-hammer, and in the village on the river banks, Swallows flew close to the pavements, turning the sharp corners, and passing in and out among the people with surprising ease.

The nearest of the Siebengebirge to the Rhine is the famous Drachenfels, which in fact rises from its banks, and is crowned with the most interesting ruin of the lower Rhine. This I climbed the next day, and was rewarded by the beauty of the foot-way and by the charming prospect from the top. A little larch and spruce grew on the rocky summit and here I found my second Titmouse, of the half-dozen which I saw in Germany. This was the Swamp Tit, very like our Chickadee in color; he was holding a seed on a limb and opening it. Here, too, I heard again my elusive songster of the previous day. He was concealed in some shrubbery near the top of the crag, but his song was loud and wild and very fine; finally he came into view and proved to be the Blackcap, who among songbirds is rated very close to his cousin, the Nightingale.

Near the restaurant by which every interesting spot is crowned, or infested, according as the traveller's inclinations are prosaic or romantic, was a little yard where a bird was feeding, who at once attracted my attention by his fine colors and tame disposition. He was a Chaffinch, the characteristic bird of the streets and yards, sharing with the House Sparrow the society and sup-

port of man, but never, so far as I could find out, abusing his privileges. The Sparrow, I found, was disliked in Germany, almost as much as he is here.

On descending the hill I came to a little town on the banks of the Rhine, where I waited for the return of the boat to Bonn. The trees in the town gardens were gay with cherries and apricots, and here and there among them I heard the whistle of a Blackbird, for he as well as his American cousin, the Robin, likes to sheathe his gold dagger of a bill in a juicy cherry. The houses along the river were the resort of Eave Swallows, Martins as the English call them, corresponding curiously to our Cliff Swallows. Their cup shaped nests of mud lined the eaves, and the white rumps of the birds flashed in the sunlight, as they flew up to feed their hungry young.

At Coblenz, four hours above Bonn, the fortress of Ehrenbreitstein marks the beginning of the highlands of the Rhine, through which the swift stream has cut a winding course between rugged banks, cut in their turn by tributary brooks. In the midst of the most picturesque portion of these hills, on a narrow strip of land at their base, lies the town, or street more properly, of St. Goar, a single line of houses directly under the bank. On the hill above it stands a mighty ruin, Ruine Rheinfels. The opposite strand is occupied by another line of houses, and above and below this, stand two fine ruins, Katz and Maus. A mile or so farther up, the Lorelie-rock rises so precipitously from the river that the railroad has to pass under it through a tunnel. The hills are flat topped as if the whole surface had once formed a plain, now cut down for a second time in all directions.

In this charming town I spent July 18 and 19, and returning Aug. 11, spent another afternoon and morning on the hillsides and in the fields. The steep slope directly behind the town was almost entirely included in a large estate, through which I obtained permission to wander. The whole hillside was thickly wooded with a young growth of mixed timber, through which paths led in all directions. Here and there vistas had been cut, overlooking the swift stream below, or giving a distant view of the Ruine Katz on the opposite shore. This wood I visited twice and found in it each time a roving crew of small birds, constituted so like our

woodland bands that I almost expected to hear the lazy trill of a Pine Warbler from the American pines which had been planted there. There were Titmice, not only the two acquaintances I had made among the Siebengebirge, but three other species as well; the Coal Tit, also resembling our species; one individual of the strange Long-tailed Tit, his body smaller than a Kinglet's with a tail three-fifths as long again; and the charming little Blue Tit. This Tit was rarely quiet and hardly ever right side up. Side by side with the Tits worked a Nuthatch, very closely resembling our Canadian species, though nearly as large as *Sitta carolinensis*. In winter the company includes Kinglets, which breed, in Germany, in forests of spruce and fir. Instead of our Warblers and Vireos there were Wood Wrens and Willow Wrens, small birds related to the Kinglets. Chaffinches and a Flycatcher took the places of the Snowbirds and Phœbe, which might share our woodland with such a crew. Here and there in the wood were moist ledges where water dripped past nodding harebells into a small fishpond below; here I saw Redbreasts, shyer than I had expected, staring at me with large eyes which betrayed their kinship to Bluebird and Thrush.

In the afternoon, I took a little tug which puffed across the swift current and landed me under the shadow of the Ruine Katz. A path led up the rocky ridge to the entrance of the ruin. My former experience warned me that I should have the company of a guide, if I entered that way, so I took the liberty of climbing the hill behind the castle and scaling the wall which protected the rear. The great court in the centre of the ruin was overgrown with bushes and trees; ladders led half way up the round tower which I climbed, but startled no Owls from their ruined retreats. A pair of fine Falcons, as large as the Peregrine, swept past me later, and I was told that they bred on the tower. A Buteo was circling in the sky and later I saw a small Hawk, perhaps a Kestrel, hovering over the river. Leaving the ruin, I climbed back with some difficulty. The hill, or Rhine bank, rose for about a hundred feet above the spur on which the ruin stood. The poverty of the soil lent an Alpine character to the vegetation; the hill was bright with yellow sedums, pinks, various flowers of the gorse family, and the first purple blooms of the

heather. A gold-green lizard slipped into a bush, and climbed it as nimbly as a snake.

Here and there in a thorn bush, I found a Red-backed Shrike, or his plainer colored mate, and once the Great Gray Shrike slipped to a topmost spray, like our winter visitor. This is a rare bird in Germany, where he is persecuted for his murderous attacks on the smaller birds. From every side came the song of Yellow-hammers. Their lemon yellow heads, brown bodies, and white tail-feathers made them an easy mark for my opera glass.

The vineyards were the resort of numerous fringilline birds. The vines are planted on a steep succession of sloping banks, separated by stone walls, which keep back the avalanche of loose scaly stones, which threaten to engulf them. Here I found another rare bird, a Bunting, with white stripes on his ashy fore-head; Linnets, too, with reddish cap; and Goldfinches, brilliant and restless birds, painted by the Creator, as the Germans tell their children, from the leavings of all the paint pots used during the creation.

It was with a feeling of surprise, when I had climbed the hillside, that I came on broad fields of grain, men and women reaping and binding, and Larks singing constantly overhead. The ascent was that of a mountain; the summit was a smiling plain. Here I was never out of the sound of Larks; scarcely had one shot down into the grain, when another began his *skree, skree.* I timed one, and found he sang for two and a half minutes. According to the books, however, it is not an unusual thing for one to remain in the air for a quarter of an hour. When I visited the same spot a month later, no Larks were singing, but here and there one flew from the stubble. Wagtails were numerous, particularly after the stubble had been turned over, and, in one field, a Pipit followed me for some distance with signs of distress. Crows, in voice and aspect hardly distinguishable from ours, also frequented these fields.

Here and there among the fields, or in the hollows between, clusters of trees had been left, and from among these the hoarse scream of the Jay startled me. It was some time before I discovered the author. Though so large a bird (he is five inches longer than the Blue Jay), he conceals himself with all the dex-

terity of a thief, which no doubt he is. Finally I got a good view of one,— the white rump, as he flew, the rich brown of the back, and the fine steel blue patch on the wing, so much in demand for artificial flies. In these groves, too, the Turtle Doves took refuge, when I frightened them from the grain fields. Their rounded tails are tipped with white, as in our species.

Beyond the grainfields, I often came to picturesque villages, the tiles of the houses slate-gray and the sides and ends covered with laths crossed in the plaster.

After walking for some time, through the fields, in the direction of the Lorelei-rock which overhung the Rhine on my right, I heard the sound of water below me to the left. I passed through a belt of pines and climbed down the loose, shingly side of a steep hill, crossed two broad chaussées and after a steep descent found myself in a narrow wooded valley. A noisy brook ran over the stones under arching trees, among which a Bulfinch showed for a moment. Wood oxalis grew in the damp moss, and ferns and brambles formed a dense tangle. I descended the valley, which broadened from time to time to a strip of meadow, and at last a house appeared with a sluice and a mill wheel. The sides of the valley were steep and clothed with pine. The brook and the neighboring road wound continually, sometimes passing directly under jutting rocks; now and then I came to gray-tiled houses, each with a wheel to which the noisy waters could be bound. The Rhine with its steamers and long lines of heavy barges, seemed far away and when I found that this little valley was the "Schweizer Thal," I thought the name most apposite.

Blackcaps sang in the willows, a Hedge Sparrow scratched under the bushes that lined the stream, and from far up on the hillside came the wild whistle of the Blackbird. When I revisited this mountain glen (for so it seemed) in August, I found two interesting birds which I had not seen on my former walk, but which no doubt were regular residents. One was the Mountain Wagtail, who was leading his young over wet stones which blocked the brook, and the other was a Water Ouzel or Dipper. This strange bird, a Thrush who yet dives, swims and lives on fish, was standing near a mill wheel, up to his reddish belly in the foaming water. When he saw me, he flew swiftly along the stream, and disappeared under the arch of a small bridge.

Soon the valley turned towards the river, the Blackcap's song and the Blackbird's whistle sounded more faintly from the mountain side, and Redstarts flew from the walls to the houses, which now became more numerous. As I paused a moment to look back, the last gleam of sunlight fell on the rugged outlines of the hills. I heard once more the Blackbird whistling far up the glen, and then, stepping out into St. Goarshausen, came upon the busy Rhine flowing by as swiftly as it did when Cæsar bridged it. High in air was a multitude of birds, which also circled there no doubt in Cæsar's time, great crescent-shaped Swifts, Martins and Swallows, and low over the river Bank Swallows uttering their harsh notes.

The Swifts and Swallows, as I have said before, are constant attendants of a Rhine journey in summer. From Mainz to Cologne they circled about the steamer, and at Arnheim, in Holland, where in August I took the boat for Rotterdam, I found them again. Above Bingen, before the river enters the Highlands, and at Coblenz where it escapes from them, there are broad expanses, where I was surprised to see not only Terns but Gulls, two hundred miles from the ocean; the Tern was our common species, and the Gull corresponded to our Bonaparte's. Herons, too, frequented these upper reaches, and from the low islands the steamer's wash drove Sandpipers, closely related to our Actitis.

Below Arnheim the river is more sluggish, and for some distance before it reaches Rotterdam, it attains considerable breadth. Great barges ascend it here, or pass by one of the numerous canals and branches, to the River Maas. The country was here very flat and fertile. The fields were full of sleek cattle, among whom, in July, Starlings innumerable had walked. Now they had all wandered off in one of those vast throngs which blacken the sky in Autumn. The Swifts too were very scarce, only now and then one showed his scimitar wings among the Swallows. Lapwings and Curlews fed in the fields, which were intersected by countless ditches. When the boat disturbed the Lapwings, they rose and with shrill cries and nervous flight, mounted upward, their white rumps and bellies contrasting with their glossy backs. Quite as conspicuous and with the same contrasting colors, were he occasional Magpies, which flew up from the banks, flirting

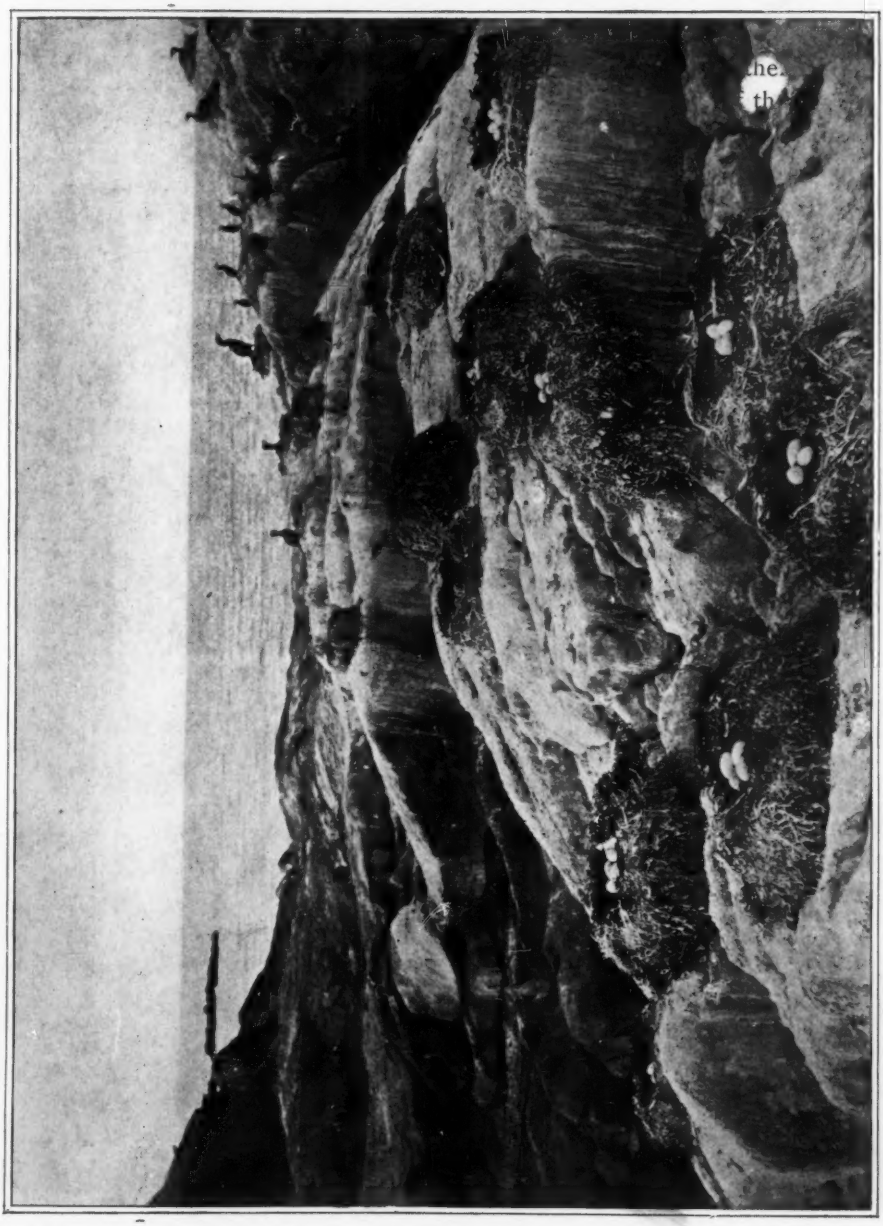
their handsome tails. The reedy shores of the river were the haunts, no doubt, of Ducks, two of which flew past us, and a Heron, gaunt and gray, gazed at the boat with uplifted leg.

As we approached Rotterdam, Terns and Gulls grew more numerous and Cormorants became a characteristic feature of the river. Whether sitting on the water, in Loon-like posture, or flying with outstretched necks athwart the sky, or perched in ungainly attitudes on the poles which rose from the narrow dikes, they were always conspicuous, and always ugly. The Gulls were the small black-headed species found before near Mainz, but near Rotterdam several Herring Gulls appeared. The red-tiled villages, too, became more frequent. The incessant hammering of shipyards assailed the ears. Boats with high and decorated prows driven by dark, patched sails passed the steamer. Soon the masts of countless shipping appeared before us and the steamer made fast to her wharf in Rotterdam, leaving the Rhine and its summer birds far behind.

## THE CORMORANT ROOKERIES OF THE LOFOTEN ISLANDS.

BY R. W. SHUFELDT, M. D.

OUR distinguished Corresponding Member, Professor Robert Collett of the Zoölogical Museum of Christiania, Norway, has for the past year or more been attempting the photography of the breeding sites of various species of Norwegian birds. Some of his recent results are very beautiful indeed, and last July (1895) when he was visiting the Lofoten Islands off the coast of Norway, he succeeded in obtaining some particularly good pictures of the breeding places of the Cormorant (*Phalacrocorax carbo*). One of these he has very recently sent me, to use as I see fit, and, as this species breeds upon our own North Atlantic coasts, I must believe that the reproduction of Professor Collett's excellent photograph, illustrating the present paper, will be of interest to our



BREEDING CORMORANTS (*Phalacrocorax carbo*).
Borgevæ Island, Lofoten Group, Norway.

ver.

own ornithologists. He writes me (11 Jan., 1896) that this view is of a rocky bay on the small island of Borgevæ of the Lofoten group, and that about three thousand Cormorant eggs are collected there annually, "and eaten by the fishermen; the eggs you see in the picture, was the *third* set laid this summer (all the other eggs already taken)." In the illustration are seen a number of the nests of the Cormorants in the foreground, containing from three to five eggs each; while in the distance nine or ten of the birds are in sight. Three or four of these are sitting on their eggs in the nests; others are perched on the rocks, and one is standing on the edge of its nest. Mr. Ridgway in his 'Manual of North American Birds' gives the clutch of eggs for the Phalacrocoracidæ as 2–5, and the size of those of *Ph. carbo* as 2.50×1.61, being "elongate-ovate, pale bluish green, with a more or less continuous white chalky crust" (pp. 77, 78). The present writer has examined the eggs of this Cormorant in the collections of the U. S. National Museum, for which courtesy he is indebted to Major Bendire. The eggs of some species of Cormorants are wonderfully like those of the Western Grebe (*Æchmophorus occidentalis*), and not at all easily distinguished from them.

The Lofoten Islands are off the northwest coast of Norway between 67° 30′ and 69° 20′ N. lat., and between 12° and 16° 35′ E. long. It is a large group and noted for its picturesqueness, and the location given also includes the Vesteraalen. We are told that the "extreme length of the group from Andenæs, at the north of Andö, to Röst, is about 130 English miles; the aggregate area amounts to about 1560 square miles, supporting a permanent population of about 20,000. The islands, which are all of granite or metamorphic gneiss, are precipitous and lofty; the highest peaks are in the Lofoten group, Vaagekallan on Öst-Vaagö rising directly from the sea to a height of 3090 feet. The climate is not rigorous, and in summer the snow-line is at 3000 feet. There is no wood upon these islands."

In the 'Dictionary of Birds' Professor Newton says: "The Cormorant, *P. carbo*, frequents almost all the seacoast of Europe, and breeds in localities at various stations most generally on steep cliffs, but occasionally on rocky islands as well as on trees. The nest consists of a large mass of seaweed, and, with the

ground immediately surrounding it, generally looks as though bespattered with whitewash, from the excrement of the bird, which lives entirely on fish. The eggs, from four to six in number, are small, and have a thick, soft, calcareous shell, bluish-white when first laid, but soon becoming discolored. The young are hatched blind, and covered with an inky black skin. They remain for some time in the squab-condition, and are then highly esteemed for food by the northern islanders, their flesh being said to taste as well as a roasted hare's. Their first plumage is of a sombre brownish-black above, and more or less white beneath. They take two or three years to assume the fully adult dress, which is deep black, glossed above with bronze, and varied in the breeding-season with white on the cheeks and flanks, besides being adorned by filamentary feathers on the head, and further set off by a bright yellow gape. The old Cormorant looks as big as a goose, but is really much smaller; its flesh is quite uneatable." (Pt. I, p. 105, *Cormorant.*)

It will be noticed, that Mr. Ridgway says the Cormorants, speaking generally of the family, lay from *two* to *five* eggs, while Professor Newton in the above account says from *four* to *six*. When I printed my 'Comparative Oölogy of North American Birds,' I had apparently overlooked this discrepancy in the two authorities just quoted. In Professor Collett's photograph the clutches of the nests in sight are evidently three to five each, but the number in the set here may have been influenced by the birds having been so often interfered with, and their nests so frequently robbed.

## CRITICAL REMARKS ON THE MEXICAN FORMS OF THE GENUS *CERTHIA.*

BY HARRY C. OBERHOLSER.

THAT there exist in Mexico two well defined races of the genus *Certhia* appears to have been first recognized by Count Hans von Berlepsch. He, in 1888, described[1] a new subspecies of the

[1] Auk V, 1888, 450.

genus from Ciudad, Durango, northwestern Mexico, under the name *Certhia mexicana albescens;* thus restricting *mexicana* proper to Guatemala and the more southern parts of Mexico. When, some years later, Mr. Gerritt S. Miller substituted [1] the name *Certhia familiaris alticola* for the preoccupied one of *Certhia familiaris mexicana* (Gloger), he very evidently overlooked the name proposed by Berlepsch, and bestowed the subspecific designation *alticola* upon "the *Certhia* inhabiting the mountains of Guatemala, Mexico and southern Arizona . . . . (No. 726*a* of the A. O. U. Check-List)." Since the term *alticola* was intended to simply replace that of *mexicana*, and as it consequently may, with equal pertinence, apply to either of the Mexican forms, it seems best to retain it for the race to which Count von Berlepsch restricted the original appellation of the Mexican Creeper — *i.e.*, the bird occurring in southern Mexico and Guatemala.

The race inhabiting northwestern Mexico and Arizona will, therefore, stand as

**Certhia familiaris albescens** (*Berlepsch*).

*Certhia mexicana* GLOGER, "Handbuch, 1834, 381" (part).
*Certhia familiaris* var. *mexicana* BAIRD, BREWER & RIDGWAY, Hist. North Am. Birds, I, 1874, 128 (part).
*Certhia familiaris alticola* MILLER, Auk XII, April, 1895, 186 (part).
*Certhia mexicana albescens* BERLEPSCH, Auk V, October, 1888, 450.

CHARS. SUBSP.— *Certhia C. familiari americanae similis, sed corpore superiore valde saturatiore, uropygio castaneo, nec fulvo, pectore abdomineque paulo canescentibus, nec pure albis, primo visu distinguenda.*

Al., 59–67 (63.8) mm.; caud., 55–64 (60.7) mm.; exp. culm., 13–15 (14.2) mm.; tars., 14–15 (14.2) mm.

HABITAT.— N. W. Mexico et Arizona.

DESCRIPTION.— Male, No. 56249, Am. Mus. Nat. Hist.; Napolera, Sonora, Mexico, Dec. 12, 1890; F. Robinette. General color above clove brown, the rump and upper tail-coverts chestnut. Superciliary stripe, spots and bars on wings, together with streaks on head, cervix and back, nearly pure white; these markings being on head rather narrow, much broader and somewhat confluent on hind neck and back. Interscapulum with a very slight admixture of the color of the rump. Outer webs of tail-feathers with little or no ochraceous suffusion. Chin and upper throat pure white

[1] Auk XII, 1895, 185.

crissum pale, tawny ochraceous, many of the feathers tipped with white; remainder of lower parts grayish white with, posteriorly, an almost inappreciable rusty tinge.

This subspecies may, by its much darker color above, be at once distinguished from any of the other forms of *Certhia* occurring in the United States, and requires comparison with only *C. familiaris alticola* from southern Mexico and Guatemala. From this it differs most tangibly in its much less rufescent tint above, the ground color of the plumage being clove brown instead of sepia; the streaks on head and back are much more clearly white and more sharply defined, and on the former somewhat larger. All the other light markings are more nearly pure white, usually lacking in a large degree the rufescent tinge seen in *alticola*. The lower parts are much lighter in color, being pure white anteriorly, and light grayish posteriorly, instead of dull rufescent gray with an admixture of rusty. The color of the rump apparently does not present a constant character, as some specimens from Arizona have this part fully as light as the Guatemala birds. The length of the bill, which was mentioned by Count von Berlepsch as diagnostic, cannot be relied upon to separate the two races, as may be seen by reference to the measurements given in the present paper.

Specimens of *albescens* from Chihuahua, Sonora, and Arizona are practically identical in coloration; but none from other localities have been examined.

**Certhia familiaris alticola** (*Miller*).

*Certhia mexicana* GLOGER, "Handbuch, 1834, 381" (part).

*Certhia familiaris* var. *mexicana* BAIRD, BREWER & RIDGWAY, Hist. North Am. Birds, I, 1874, 128 (part).

*Certhia familiaris alticola* MILLER, Auk XII, April, 1895, 186 (part).

CHARS. SUBSP.— *C. familiari albescenti affinis, sed capitis et nuchae striis angustioribus, corpore supra multo rufescentiori, subtus magis sordido, plus minusve ferrugineo tincto.*

Al., 58–67 (64.8) mm.; caud., 55–66 (61.2)[1] mm.; exp. culm. 12–16 (14.2) mm.; tars., 14–16 (14.7) mm.

[1] Excludes five specimens which have the tail much worn or otherwise imperfect.

HABITAT.— Mexico merid. et centr.; Guatemala.

DESCRIPTION.— No. 69835, U. S. Nat. Mus.; Volcan de Fuego, Guatemala, Nov. 18–20, 1873, 10200–12000 feet; Osbert Salvin. Ground color of the upper parts dark sepia brown, the rump and upper tail-coverts very dark tawny. Superciliary stripe, streaks on pileum, cervix and interscapular region, bars and spots on wings, white, strongly suffused with rufous. The markings on head, hind neck, and back more indistinct than in *albescens;* those of the last mentioned portion somewhat confluent. Back with much infusion of tawny and chestnut; the outer webs of the tail-feathers with an edging of ochraceous. Chin and throat white, washed with ochraceous; crissum very pale tawny ochraceous, mixed with white; remainder of lower parts dull gray, suffused and somewhat mixed with rusty.

A much richer, more fulvous tinge characterizes this race as distinguished from the preceding. The light markings upon the head and cervix are somewhat reduced both in number and size, and together with those of the interscapular region are strongly suffused with the prevailing rufescent tinge of the remainder of the plumage, being thereby rendered noticeably less conspicuous. The ochraceous or rufescent tinge below is quite marked in comparison with typical *albescens*, though the amount of rusty admixture is decidedly variable. In some specimens, however, the throat is apparently without the ochraceous tint, being nearly as pure white as in *albescens*. The bird above described is perhaps an extreme specimen, as in all of the others the dorsal streaks are more grayish, often with a slight greenish tinge.

In its most typical form this subspecies inhabits Guatemala and southern Mexico, but the birds from central Mexico should apparently be also here referred. Specimens of *Certhia* from Vera Cruz, Puebla and southern Jalisco, though approaching *albescens* in the rather lighter color of the markings on the upper parts, are much darker below, and altogether are much nearer *alticola*.

The foregoing remarks have been based upon a series of eighteen specimens; five of the form here distinguished as *Certhia familiaris albescens*, and thirteen of *Certhia f. alticola*. Although more material would of course have been desirable, yet that which is now available seems sufficient to warrant the conclusions above reached.

Acknowledgment should be made to Mr. F. M. Chapman for his kindness in permitting the writer to examine the series of

Creepers contained in the American Museum of Natural History; to Dr. C. Hart Merriam for the use of the specimens in the collection of the Department of Agriculture; and to Mr. Robert Ridgway for his courtesy in allowing similar access to the collection of the National Museum.

## FURTHER REMARKS ON THE LAW WHICH UNDERLIES PROTECTIVE COLORATION.

BY ABBOTT H. THAYER.

SINCE writing my article on protective coloration in the April Auk (XIII, 1896, pp. 124–129), I have alighted on the means of still more complete ocular demonstration of the law of protective coloration.

I made some wooden eggs about the size of a Woodcock's body, and provided them with wire legs to poise them six inches above the ground.

Most of these I colored in imitation of the color-gradation of a grouse or hare; earth-color above, to pure white beneath; while to two others I gave a coat of earth-color all over, above and below; then set the whole like a flock of 'shore birds,' on the bare ground in a city lot.[1]

I then summoned a naturalist and let him begin at forty or fifty yards to look for them. He saw immediately the two monochrome ones; but although told exactly where to look, failed to find any of the others, until within six or seven yards, and even then *only by knowing exactly where to look.*

I had also painted bright blue and red spots as big as a silver quarter of a dollar on the brown back of one of the graded eggs. These spots the naturalist saw, when we had come pretty near,

[1] To give the gradation its complete effect, the painting of the wooden eggs should be done after they are placed on the ground and of course by an artist.

though they only passed for details of the ground beyond the egg.

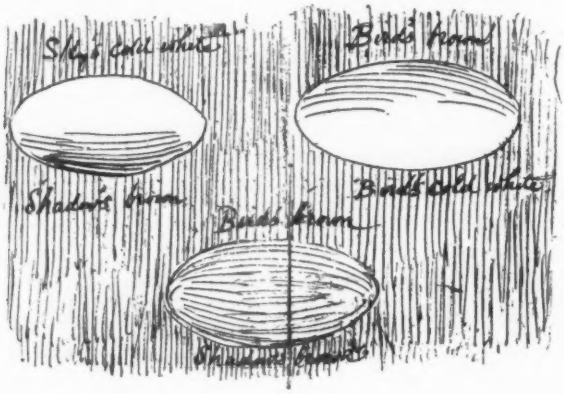
It was to this latter experiment that I alluded in a footnote (l. c., p. 127), when I said that brilliant top colors scarcely tend to interfere with the gradation's power. This statement does not apply, however, to creatures in which, as in a Blue Jay, the bright color so predominates as to form a silhouette shaped like the creature, but only when the bright pattern goes, as it were, its own way, not accompanying the animal's form.

Yet, even in the Jay's case, his gradation down to white under throat and belly diminishes so greatly his conspicuousness in the dim forest shade, that he may be suspected of great indebtedness to this arrangement of color as he skulks among the leaves. He must often be much helped, also, by the fact that whenever his gradation works its charm and denies his substantiality, his blue is *likely*, at least, to appear to belong to whatever surface, far or near, forms his background for the beholder's eye at the moment; as for instance a bit of blue distance seen through the leaves. And often when he is not concealed to this degree, his ghostly appearance still tends to cause the beholder to think him further off than he is, which may be sometimes equivalent to concealment. The reader should compare a graded blue egg with one blue all over, both seen in deep woods. Let me urge the reader to understand these color-phenomena, which are the open door into a new world of most charming study of special cases of protective coloration hitherto misunderstood.

One must remember that by far the greater part of the objects he espies as he walks are first caught sight of *out of the side of his eye;* and it is this *faint seeing* against which all this *faint appearing* is so potent, in countless cases where the animal could not elude the *direct eye.* In my former article I omitted to emphasize the device of nature by which she accomplishes, in the *only possible way*, the bringing the top, sides, throat, and belly of an animal to the exact *color* of the surrounding earth, as well as to the same *degree of darkness.*

The animal's top is brown like the ground about him, and from this brown his color grades steadily colder till it becomes *cold* white on his under surfaces. The latter being in shadow and

bathed in a yellow reflection from the earth, has the exact *color*, as well as *degree of darkness of his top*. Since, obviously, earth-brown bathed in sky light, equals sky light (color of the animal's belly) bathed in earth-yellow and shadow, *i. e.* brown.



This grading to white under-surfaces is precisely what would result if daylight tended to brown animals' coats, and its lack to bleach them. And, from this, one might fancy the whole phenomenon to be the result of such browning and bleaching. But to those who believe in Natural Selection it must be obvious that the gradation's protecting-power proves it a result of such selection. As to a bleaching and browning theory; many facts suggest that light does not tend to darken the coats of animals: Notice for instance the pale inhabitants of treeless regions, such as sandy beaches, etc., compared with wood-dwellers. But this discussion is outside my present purpose.

As an epigrammatic lash to my entire thesis on Protective Coloration, it is important to say that no other conceivable arrangement of light and dark colors could effect the intrinsic unsubstantiality of appearance guaranteed by the gradation therein set forth.

# EVIDENCE SUGGESTIVE OF THE OCCURRENCE OF 'INDIVIDUAL DICHROMATISM' IN *MEGASCOPS ASIO.*

BY ARTHUR P. CHADBOURNE, M. D.[1]

THE common Screech Owl and some of its varieties are typical examples of dichromatism, which may be defined as the occurrence of two distinct phases of color *in different individuals* of the same species, entirely independent of age, sex, or season. It is evident that "the occurrence of two distinct phases of color" *in the same individual*, if "independent of age, sex, or season," must constitute an *individual*, as distinct from the *specific* form of dichromatism. The following account of a pair of Screech Owls shows that 'individual dichromatism' probably occurs in this species, though it is doubtless infrequent, and possibly found only under artificial or even diseased conditions.

Two Screech Owls (*Megascops asio*), said to have been taken from the same brood late in the spring of 1894, were sent to me about Nov. 1, 1894. Both birds were in typical gray plumage, but a minute examination of the feathers was not made at the time, as the possibility of a change in phase had not been thought of, though, as an intermediate between the red and the gray plumage was wanted, it is safe to say that any reddish tint would have been noticed if present. The two Owls were in full autumn dress except for a few downy feathers near the so-called ears.

The Owls were put in a large box cage, with the front of wire netting; and a hole at one side opened into a second box, thus making a dark retiring place, that was never used. Six times each week they were given all the raw beef or sheep's liver that they wanted; but the seventh day they fasted. Fresh water for drinking and bathing, and also gravel were put in the cage daily; while in addition dead guinea pigs, and occasionally live mice, were to be had in the 'animal room' at the Medical School, where

[1] Read at the meeting of the Nuttall Ornithological Club, March 4, 1895.

the cage had been placed. These 'tid-bits' were the cause of much trouble, and after the first trial I never put a mouse in the cage unless there was a second mouse for the other Owl, as a dangerous fight was sure to be the result. By day their sight was as keen as at dusk, but the birds were more restless after dark, though it was necessary to watch closely to prevent them from slipping out while the door of the cage was opened to give them daily food, and I doubt if a movement of any kind was often made that their sharp eyes did not notice. Like all 'Scops' they were quickly tamed, and quite gentle unless frightened. Twice I heard the tremulous *whou-hou-hou-hou-hou* note, each time just after dusk when all was quiet and when no gas was lighted. Spitting, and a scolding rattle when disturbed, were the only other sounds that they were heard to utter. The 'pellets' were unlike those found near the familiar 'owl-holes' and looked like uncooked sausage-meat minus the fat. No gravel was ever found in these castings, yet though more friable than those of the wild birds, they were always firm, well formed, and seemingly held together by a sticky coating that soon dried and looked like gelatine.

Toward the last of November, nearly three weeks after arrival, the larger, and, as it proved, the female Owl, grew more and more red-brown in tint, until there was little pure gray to be found. This was followed by a constantly increasing amount of tawny red; while simultaneously the brownish tinge spread over the upper parts and tail-feathers, and the dark cross bars on the breast seemed to fade. The difference was so marked as to be spoken of by five different persons, who had seen the birds at first. Meanwhile the smaller Owl remained unchanged, so far as could be seen, although in the same cage and apparently under the same conditions as the other.

From the first I searched the cage daily for cast-off feathers, as I wanted to know the number lost when the birds were not molting. During the three weeks and two days only twenty-four feathers were found; 15 of the 'first plumage', 3 tail-feathers and 6 mature feathers, or at least not those of the first plumage. The twelve or even twenty-four new feathers, which had doubtless replaced those lost, were evidently not the cause of the general alteration

in tint that could be seen in almost every feather of the female. On the other hand, it might perhaps be claimed that the total number of feathers composing the plumage had increased, and that the new phase was due to the freshly developed feathers mingling with the old that had been present from the first. The interest and importance of the change in tint of the female Owl was now realized and a thorough search for pin-feathers was made, but without success. Three of the feathers on the breast that seemed without a trace of red or brown in the ground color, were then marked with a pair of scissors to see if they would remain unchanged, but within the next week I found all three feathers on the floor of the cage; two feathers around which I tied a bit of hair, were also cast off or pulled out; and the same result followed with two feathers that were slightly marked with a solution of eosine and water; and also with two that were marked with bi-chromate of potassium. There seemed to be only one way left in which to settle the question as to whether the gray feathers actually changed their tint; so having first 'mesmerized' (?) the owl by laying her on her back and gently stroking her head until she was quiet, I carefully counted all the feathers having a dark median stripe, but without any red or brownish tinge in the ground color, beginning just below the whitish feathers of the throat and going as far as the under tail-coverts, and from the median line of the body to the unstreaked downy feathers under the wing; the result was forty gray feathers. Only three weeks later, on Dec. 21, I could not find more than nine feathers that were free from brownish tinge. It must, I think, be admitted (1) *that an actual change from gray to red-brown took place in the individual feathers, and* (2) *that the red phase was not entirely, if at all, due to new feather growth in the present instance.*

Until December 22, the diet of beef liver was continued, but was occasionally varied by beef kidney, the other conditions remaining as before. The larger Owl continued to approach more and more nearly the red-brown phase, and on Dec. 21 had the general tawny-brown effect seen in specimens that do not show the brilliant red, typical of extreme examples of this phase. Both birds seemed healthy and well; but the smaller Owl now also showed more or less signs of reddish-brown here and there, and some

feathers taken from the breast on Dec. 21, were markedly tawny toward the base. From Nov. 1 until Dec. 21, a total of fifty-nine feathers had been lost by the two birds, but from this number, forty-two must be deducted — (9 lost because of my effort to mark them, 4 tail-feathers, 15 feathers evidently of the younger plumage, and the remaining 14 lost in a fight between the Owls for the possession of a mouse). This leaves for each of the Owls a total loss of nine feathers during the change described above; yet on one of the birds, as we have seen, the majority of the feathers were characteristic of the red-brown phase.

On Dec. 22, the Owls were sent to some Owl-loving friends in the country, where they could have space to fly about, and we hoped to have some young Owlets later. At this time the liver was stopped and they were fed upon raw meat. Every cast-off feather was carefully preserved and labelled, and I heard often of my pets, but especially about the color of the plumage. There seemed to be rather a loss, than an increase of the red-brown effect as time went on, and this was very evident, or at least I thought so, on Jan. 17, when I saw the surviving Owl, which was the larger red-brown female. The smaller and grayer bird had been killed and partly eaten by the other on Jan. 3.

On Jan. 19, the other Owl was found dead in her cage. She was sent to me and is now in my collection, No. 4397. A careful examination showed that the organs were all healthy macroscopically, but the bird was much emaciated, there being almost no fat about the kidneys and mesentery, and but little in the orbits. This was a marked contrast to the fatty degeneration from overfeeding which I believe is usual in captive Hawks and Owls. The condition of the bones of the skull proved that the bird was less than a year old.

This ends the history of my two pets, which I have intentionally given at considerable length. It seems certain that in the larger female Owl there was (1) *a change from the typical gray to the characteristic, though not extreme phase of red;* (2) *and that this was neither caused, nor accompanied by appreciable 'feather loss' (so-called 'molt');* (3) *nor can it have been wholly, if at all, dependent upon new feather growth; and* (4) *it is also evident that there was a distinct change in the color of the individual feathers, which were apparently mature, as seen under the microscope.*

It cannot be said with absolute certainty that the reddish phase was "entirely independent of age, sex, or season," and hence an example of 'individual dichromatism'; but if due to such normal and universal laws as any of the above, the fact of a change of color in the individual could hardly have escaped the notice of ornithologists, while if caused by the ordinary conditions of captivity it must have been recognized long since. The evidence, therefore, seems to be *almost* conclusive that this Owl was an instance of what I have for convenience called '*individual dichromatism*'; and also that this condition is probably infrequent, and doubtless due to some unknown element, not common even in captivity.

(*To be concluded.*)

## RECENT LITERATURE.

**Sclater on Rules for Naming Animals.**[1] — At the meeting of the Zoölogical Society of London, held March 6, 1896, the special topic assigned for discussion was the Code of Rules for Zoölogical Nomenclature adopted by the German Zoölogical Society, or rather the discrepancies between these rules and those of the Stricklandian Code, with a view to their possible reconciliation. The discussion was opened by Dr. Sclater, who appears to have made the principal address of the evening, and who was followed by other speakers.

The discussion, it may be remarked, was apropos of the new work planned by the German Zoölogical Society, called 'Das Tierreich,' which is to comprise the synonymy, the geographical range, and short descriptions of every known species of animal. It is, of course, of the highest importance in a standard work of this magnitude that the rules of nomenclature adopted shall be such as will command the respect of the greatest possible number of workers; for it is Utopian to expect that any code of rules can be devised at present, if ever, that will receive unanimous endorsement. As preliminary to its work the German Zoölogical

[1] Remarks on the Divergencies between the "Rules for naming Animals" of the German Zoölogical Society and the Stricklandian Code of Nomenclature. By P. L. Sclater. Proc. of the Zoöl. Soc. of London, 1896, pp. 306–319.

Society adopted in 1894 a code of rules for zoölogical nomenclature,[1] which, while differing quite radically in several important points from the British Association Code, is fortunately in essential accord with all other recent Codes, the tendency being toward unity on the few leading points in which the British Code differs from the later systems of rules. In respect to the German Code, it may be sufficient to say that in only one particular does it differ from the A. O. U. Code, namely, in permitting "purely orthographical correction when the word is, without doubt, wrongly written or incorrectly transcribed." This is a minor point, in no way seriously affecting names.[2] As compared with the British Code, it (1) adopts the Xth edition of Linnæus's 'Systema Naturæ' as the starting point for the law of priority; (2) it disclaims any relationship between the nomenclature of zoölogy and botany; (3) the same term may be used for the generic and specific name of a species when these names have priority.

As Mr. Sclater points out, these are the three essential points of difference between the German and British Codes, the latter adopting the Xth edition of Linnæus as its starting point for the law of priority, and holding that the same generic name must never be used in botany and zoölogy, and that a new specific name must be given to a species when its old name has been adopted for a genus.

On all these points Mr. Sclater upholds the British system. Respecting the first he says: "Strickland, the founder of our modern Codes of Nomenclature, after deliberately considering the point, adopted the latest and most perfect edition of the 'Systema Naturæ' as his starting point. I think we should do unwisely to deviate from Strickland's views on this subject. . . . On the ground of priority, therefore, I claim that, as first decided by Strickland, we ought to adopt the twelfth and most perfect edition of the 'Systema Naturæ' as the basis of modern Nomenclature." This, as has been repeatedly shown, is a lame defense, hardly worthy of serious consideration. But are the statements regarding Strickland quite correct? According to the 'Revised Rules' of the British Association: "In Mr. H. E. Strickland's original draft of these Rules and Recommendations the edition of Linnæus was left blank, and the XIIth was inserted by the Manchester Committee." There is, besides, evidence to show that Mr. Strickland considered the Xth edition as the starting point for binomial nomenclature.[3]

---

[1] Regeln für die wissenschaftliche Benennung der Thiere zusammengestellt von der Deutschen Zoologischen Gesellschaft. Leipzig, 1894.

[2] The A. O. U. Code (Canon XL) provides that "The original orthography of a name is to be rigidly preserved, unless a typographical error is evident." This, it must be admitted, has met with wide-spread disapproval, though advocated by De Candolle in 1883, and in favor of which, in the interest of absolute fixity of names, there is still much to be said.

[3] *Cf.* Auk, I, 1884, p. 400.

Thus apparently Mr. Sclater concedes practically nothing in the interest of "reconciling the differences between the German Rules and the Code of Nomenclature adopted by the British Association"; he strenuously upholds the British Code on the three essential points wherein it differs from the German Code, regardless of the fact that within the last ten years the whole world of zoölogists, outside of the British Islands, has gone over to the opposite view, and that a number of prominent British zoölogists have also recently joined the great and ever increasing majority against the British Code. We must say, with regret, that this looks like unwise conservatism, bordering on perversity; for the few British naturalists who still stick to the British rules can hardly expect the rest of the world to waive their better judgment in favor of insular sentiment and traditions.

Mr. Sclater has much to say in favor of the German Code where it is in agreement with the British rules, and has even been willing to make concessions on one or two minor points. One of these is that "the name of the author, if given, should follow the scientific name without intervening sign," as is expressly provided in the A. O. U. Code and approved by the German zoölogists. It is with regret, therefore, that we have observed in certain publications in this country a tendency to insert a comma between the scientific name and the authority, and especially in the publications of our own National Museum, where, up to a few years ago, the contrary practice prevailed.

We are glad also to see that Mr. Sclater here comes out squarely in favor of the use of trinomials for subspecies,—which, it is true, he has used quite freely for some years past. On this point he says: "That subspecies actually exist in nature cannot, I think, be denied by anybody who believes in the origin of species by descent. Nearly all forms of animal life, which have a wide distribution, show differences when individuals from the two extremes of the range of the species are compared. . . . 'Subspecies' appears to me to be an excellent term to designate the slight differences exhibited in these cases, far better than 'climatic' or 'geographical' variety, which is often used for them. . . . The British forms of the Coal Tit and the Marsh Tit, which have been named *Parus britannicus* and *Parus dresseri*, appear to me to be good instances of subspecies. I should propose to call them *Parus ater britannicus* and *Parus palustris dresseri*, while the corresponding forms of the continent should be termed *Parus ater typicus* and *Parus palustris typicus* when they are spoken of in the restricted sense only. In ordinary cases, however, it is sufficient to say *Parus ater* and *Parus palustris* without any reference to the subspecies. To give these slight and in some cases barely recognizable variations the same rank as is awarded to *Turdus musicus* and *Turdus viscivorus* seems to me highly undesirable, and the recognition of subspecies indicated by trinomials gives us an easy way out of the difficulty." While of course all this has been said before, it is gratifying, as we recall the past in relation to trinomials, to see it restated in the present connection.

As 'Appendix I' to his address, Mr. Sclater gives an English transla-

tion of the 'Rules,' twenty-eight in number, adopted by the German Zoölogical Society for the scientific naming of animals, the explanations and comment accompanying the original rules being, however, omitted. 'Appendix II' gives a convenient list of 'Titles of the principal Modern Codes of Zoölogical Nomenclature,' eleven in number.

The discussion following Mr. Sclater's paper included a communication from Graf Hans von Berlepsch, and remarks by Sir William Flower, Mr. Hartert, Professor Lankester, Mr. Elwes, Dr. D. Sharp, Mr. W. T. Blandford, Dr. H. O. Forbes, and Mr. W. F. Kirby. In the main their views are so inharmonious, aside from the three main points under discussion, as to discourage the hope of an immediate general agreement on principles of nomenclature. Some of the writers favored the Xth edition and others the XIIth edition of Linnæus as the starting point; some even seemed doubtful about taking either, but favored the selection of some much more recent period — some standard work for any branch of zoölogy where such a work is available, taking the names there given, whether right or wrong, and in defiance even of the law of priority. It was also suggested that International Committees be appointed, "*not* to draw up a Code of rules, but to produce an *authoritative* list of names — once and for all — about which no lawyer-like haggling should hereafter be permitted"! Any attempt to combat such crude notions would evidently be a waste of energy!

Professor Lankester, "thought the XIIth edition of the 'Systema Naturæ' should be adopted as the starting point of Zoölogical Nomenclature, as a tribute of respect to Linnæus, since it was the last edition of that work and contained Linnæus's revised list of genera and species" Mr. Hartert thought that the Xth edition of this work should be taken as the correct starting point, "because in that edition Linnæus first made use of the binary system of nomenclature; and as the question of justness had been mentioned he considered that it would be unjust to authors who created names between the dates of the two editions, if the twelfth were adopted; he was, moreover, of opinion that if the XIIth edition were adopted, because it contained corrections and emendations of the older edition, it would make a bad precedent, and that any other author might, if so inclined, claim to alter his original names after he had created and published them, and so cause confusion." We give this as the gist of the whole argument on the matter of the two editions, and commend Mr. Hartert's clever *reductio ad absurdum*.—J. A. A.

**Swann's Handbook of British Birds.**—This little manual[1] is certainly what its title implies — a *concise* handbook of British Birds, or, as claimed in the preface, "a handy textbook of reference," small enough

[1] A Concise Handbook | of | British Birds | By | H. Kirke Swann | Editor of "The Ornithologist." | — | London: | John Wheldon & Co., | 58, Great Queen Street, W. C. | 1896. 16 mo, pp. viii+210.

to be easily carried in the pocket. In view of the many 'manuals' and 'handbooks' of British birds, its compact form and small size must be its main *raison d'être*. There is no introductory matter beyond the preface, no diagnoses of the higher groups, no analytical keys, no general analysis of the avifauna as regards the manner of occurrence of the species, and, finally, no index! As 381 species and about a dozen additional subspecies are treated in the course of 208 pages, the descriptions are necessarily brief and the biographical matter is reduced to a minimum. Nevertheless it must serve as a "handy textbook of reference" to those who have already some knowledge of British birds, but hardly as the most convenient form of a manual for the beginner. Some 30 species usually included in British lists are "provisionally excluded," being relegated to a nominal list in the Appendix, on the ground that their "recorded occurrences are either insufficiently authenticated or somewhat improbable."

The classification and nomenclature is practically that of the B. O. U. List, "but a number of necessary alterations have been made, particularly in the matter of adopting the specific names of the *first* describers as far as possible. An effort has also been made to allow specific rank to valid species only, while subspecies or races, instead of being nameless, are distinguished by sub-numbers and trinomials — after the American style." He adds that he does not expect to "escape censure for adopting the despised system, yet until some of our ornithologists can suggest some other way of allowing a name to a recognized race without giving it the rank of a species, I will adhere to trinomials." He says further that with the exception of the late Henry Seebohm, "no British ornithologist appears to have openly avowed himself a trinomialist." He is not, however, quite so destitute of good company as a trinomialist among his own countrymen as he seems to suppose, as witness the use of trinomials by numerous British naturalists, and their recent formal approval by Mr. Sclater (see above, p. 327) — J. A. A.

**Loomis on California Water Birds.**[1] — Mr. Loomis continues his studies of the Water Birds of the Californian coast by a visit to South Farallon Island from July 8 to 16, 1896. Interesting notes are given on the habits of the ten species of Water Birds found nesting there, with remarks on four so-called "non-indigenous" species.

Speaking of the wholesale robbery of Murres' eggs to supply the San Francisco market, Mr. Loomis says: "It is apparent that unless this devastation is put an end to, the Farallon Murre rookeries will ere long belong to the past. A State law prohibiting the sale of eggs of wild birds and prompt action on the part of the lighthouse board will preserve this

[1] California Water Birds. No. III. South Farallon Island in July. By Leverett M. Loomis, Curator of the Department of Ornithology. Proc. Cal. Acad. Sci., Ser. 2, Vol. XI, pp. 353–366, 2 maps.

wonderful marine aviary — second to none of the natural features of California." In 1884 it is said 300,000 eggs were gathered and the market was glutted, while the present year only 91,740 have been taken. Comparatively few birds are allowed to breed and such merciless persecution can but result in extinction. The commercial value of these rookeries will doubtless prevent their protection from purely sentimental grounds, but if it can be shown that the present course will end in the destruction of the egg industry, it might be possible to secure the enactment of a law which would protect the birds for at least the latter half of the nesting season.— F. M. C.

**Ridgway on New Species and Subspecies of Birds**[1].— In the three papers here cited, none of which bears date of publication, Mr. Ridgway describes *Geothlypis flaveolatus* from near Tampico on the Gulf coast of Mexico, a form which, strangely enough, is most closely related to *G. beldingi* of Lower California; *Geospiza pachyrhnca*, *G. fatigata*, *Camarhynchus bindloei*, *C. compressirostris*, and *C. incertus* from the apparently exhaustless Galapagos, and *Peucedramus olivaceus aurantiacus* from Guatemala.— F. M. C.

**Oberholser on Two New Subspecies of Dryobates.**[2]— Comparison of a series of 200 Downy Woodpeckers has impressed Mr. Oberholser with the differences in size and color existing between specimens from the South Atlantic and Gulf States and those from Alaska and northern British America, and he therefore separates these extremes under the names *Dryobates pubescens meridionalis* (Swainson) and *Dryobates pubescens nelsoni* (Oberholser) respectively, leaving *Dryobates pubescens* as a transition form occupying the intervening region.— F. M. C.

**Richmond on Mexican Birds.**[3] — This is a nominal list of 58 species, with the number of specimens of each, received by the National Museum

---

[1] 1. Description of a New Species of Ground Warbler from Eastern Mexico. By Robert Ridgway, Curator of the Department of Birds. Proc. U. S. Nat. Mus., XVIII, p. 119.

2. Preliminary Description of some New Birds from the Galapagos Archipelago. *Ibid.*, p. 293.

3. Description of a New Subspecies of the Genus *Peucedramus*, Coues. *Ibid.*, p. 441.

[2] Description of Two New Subspecies of the Downy Woodpecker, *Dryobates pubescens* (Linnæus). By Harry C. Oberholser. Proc. U. S. Nat. Mus., XVIII, 1895, p. 547.

[3] Partial list of Birds collected at Alta Mira, Mexico, by Mr. Frank B. Armstrong. By Charles W. Richmond, Assistant Curator of the Department of Birds. Proc. U. S. Nat. Mus., XVIII, 1896, pp. 627–632.

from the collector. The one new species contained in the collection has been described by Mr. Ridgway as *Geothlypis flavovelatus.* (See *antea, p.* 330). — F. M. C.

**Richmond on New Species of Birds.**[1] — Mr. Richmond here describes *Ægialitis thoracica*, apparently most nearly related to *Æ. varia*, and *Phlegopsis saturata*, a Nicaraguan representative of the Panama *P. macleannani.* — F. M. C.

**Dr. Abbott's Collections from Asia.**[2] — The two papers here cited are detailed lists of the birds collected by Dr. Abbott, giving the data of each specimen, including color of the irides, bill, and feet. The first paper is based on 746 specimens, referable to 188 species; the second, on 210 specimens, representing 98 species. *Cyanecula abbotti* from Ladak, *Merula merula intermedia* from Eastern Turkestan, and *Ægialitis pamirensis* from Pamir, are described as new. — F. M. C.

**Dr. Abbott's Collections from the Seychelles and other Islands.**[3] — This paper is an important contribution to our knowledge of the distribution of birds in these Madagascan islands. Sixteen land birds are recorded from the Seychelles group, eight from the Amirante group, four from Assumption Island, eight from Gloriosa Island, and twenty from Aldabra Island. Dr. Abbott's field-notes relate almost wholly to the birds of the last named

---

[1] 1. Description of a New Species of Plover from the East Coast of Madagascar. By Charles W. Richmond. Proc. Biol. Soc. Wash., X, March 14, 1896, p. 53.

2. Description of a New Species of Ant Thrush from Nicaragua. By Charles W. Richmond, Assistant Curator of the Department of Birds. Proc. U. S. Nat. Mus., XVIII, p. 625.

[2] 1. Catalogue of a Collection of Birds made by Dr. W. L. Abbott in Kashmir, Balistan and Ladak, with Notes on Some of the Species, and a Description of a New Species of *Cyanecula.* By Charles W. Richmond, Assistant Curator of the Department of Birds. Proc. U. S. Nat. Mus., XVIII, 1896, pp. 451–503.

2. Catalogue of a Collection of Birds made by Dr. W. L. Abbott, in Eastern Turkestan, the Thian-Shan Mountains, and Tagdumbash Pamir, Central Asia, with Notes on Some of the Species. By Charles W. Richmond, Assistant Curator of the Department of Birds Proc. U. S. Nat. Mus., XVIII, 1896, pp. 569–576.

[3] On Birds Collected by Doctor W. L. Abbott in the Seychelles, Amirantes, Gloriosa, Assumption, Aldabra, and Adjacent Islands, with Notes on Habits, etc., by the Collector. By Robert Ridgway, Curator of the Department of Birds. Proc. U. S. Nat. Mus., XVIII, 1896, pp. 509–546.

island. His observations on the flightless Rail (*Dryolimnas aldabranus*) are particularly interesting.

Thirteen of the birds collected by Dr. Abbott in these islands have been previously described as new by Mr. Ridgway[1], and the name *Turtur abbotti* is here proposed for the Seychelles form of *T. picturatus*.

An Appendix gives a useful tabular list, showing the distribution of the 212 birds known from the entire Madagascan group of islands, from Mauritius to Comoro, and a bibliography — F. M. C.

**Robinson's Birds of Margarita.**[2] — In 1876, when the Smithsonian Institution sent Mr. F. W. Ober to make collections of birds in the Lesser Antilles, there were only two of the larger islands of the Caribbean basin, Cuba and Jamaica, of whose avifauna we possessed anything approaching a complete knowledge. It is an indication of the activity shown in ornithological research during the past twenty years that the island visited by Lieut. Robinson was the only one in the whole West Indian and Caribbean group which had not been more or less explored by ornithologists. Margarita, like Trinidad, is a continental island and has derived its avifauna from Venezuela, from which it is distant only seventeen miles. It is forty-two miles long and twenty and one-half miles wide in its greatest dimensions. The southern shore in the vicinity of Porlamar, where Lieut. Robinson landed, is "flat or gently rolling" and grown with scrubby thorn trees, cacti, etc. "About three miles inland foothills begin, which rise by leaps to a central peak, 3,240 feet in height," a sufficient height to condense the moisture of the warm trade-winds, giving a rainfall which produces a heavy forest.

Lieut. Robinson had only sixteen days' collecting on Margarita, but the fact that he began half an hour after landing is good evidence that he made the most of this time. He worked both in the dry coast region and in the mountain forests, securing 200 specimens and recording 73 species.

Of a number of these interesting biographical notes are given. Thus the calls of *Eupsychortyx pallidus* resemble those of our Bob-white, a marked instance of the stability of call-notes and suggesting common ancestry; *Bucco bicinctus* nests in holes in the dwellings of termites; the Buff-breasted Hummingbird feeds in part on fruit and has a song of decided character, and *Myiarchus tyrannulus*, like our own *Myiarchus*, uses a cast-off snake skin for home decoration, evidence of the antiquity of a habit which has doubtless persisted long after its cause has ceased to

[1] Proc. U. S. Nat. Mus., XVI, 1893, pp. 4, 597–599; XVII, 1894, 371–373; Auk, XI, 1894, 74.

[2] An Annotated List of Birds Observed on the Island of Margarita, and at Guanta and Laguayra, Venezuela. By Wirt Robinson, First Lieutenant, Fourth U. S. Artillery, with Critical Notes and Description of New Species, by Charles W. Richmond, Assistant Curator, Department of Birds. Proc. U. S. Nat. Mus., XVIII, 1896, pp. 649–685, one map.

be potent. *Chordeiles acutipennis* is said to flit along the road at dusk and alight in front of the traveller; a rather unusual habit for a Nighthawk. Is it not possible the bird observed was *Nyctidromus?*

Mr. Richmond has made good use of Lieut. Robinson's collection, adding numerous critical notes and describing no less than ten species as new, most of which are apparently pale island forms of mainland species; they are the following: *Butorides robinsoni, Eupsychortyx pallidus, Leptotila insularis, Scardafella ridgwayi, Speotyto brachyptera, Doleromya pallida*,[1] *Amazilia aliciæ*,[2] *Dendroplex longirostris, Quiscalus insularis, Cardinalis robinsoni*,[3] and *Hylophilus griseipes.*

In conclusion lists of birds identified during a few days' stay at Guanta and Laguayra are given.—F. M. C.

**Cherrie on San Domingo Birds.**[4]—Of all the West Indian islands, San Domingo is least known ornithologically. Cuba, Jamaica, and Porto Rico, of the larger islands, have had resident naturalists who have made us acquainted with the fauna of their homes, while the smaller islands could be explored by an energetic collector during a few months' visit. It may be safely said, therefore, that only in San Domingo and Hayti alone is there a probability of discovering birds new to science. Students of the West Indian avifauna will thus welcome this paper by Mr. Cherrie, whose ability as a collector has been proved in other fields.

In an interesting introduction, descriptive of his travels in the island from January to May, 1895, there is abundant evidence that patience, experience, a fever-proof constitution, and enthusiasm were needed to carry the trip to the successful conclusion which the succeeding pages record, while a record of 210 bird-skins in five days' collecting show that material results are not wanting.

Mr. Cherrie's list of only eighty-three species betrays the poverty of an insular avifauna, but of these we have numerous interesting observations on notes and habits. *Dulus dominicus* is stated to build one large nest which is used by a number of females; *Nesoctites micromegas* often resembles some Warblers in actions, while *Chloronerpes striatus* is a Sapsucker. Our Yellow-billed Cuckoo (*Coccyzus americanus*) is probably a summer resident in San Domingo, a considerable extension of its known breeding range, which was previously supposed to be from Florida north-

[1] Previously described in 'The Auk,' XII, 1895, 369.

[2] Previously described in 'The Auk,' XII, 1895, 368.

[3] Previously described in 'The Auk,' XII, 1895, 370.

[4] Field Columbian Museum. Publication 10. Ornithological Series, Vol. I, No. 1. Contribution to the Ornithology of San Domingo. By George K. Cherrie, Assistant Curator of Ornithology. Charles B. Cory, Curator of Department. Chicago, U. S. A., March, 1896. 8vo. pp. 26.

ward. Five females with enlarged ovaries were taken and one contained an egg "that would have been deposited in one or two days."

The two new birds discovered have been described by Mr. Cory in this Journal (Vol. XII, 1895, p. 278). One, *Elainea cherriei*, is related to *E. fallax* of Jamaica, the other, *Hyetornis fieldi*, is a very interesting addition to this genus, which before contained only the Jamaican *Hyetornis pluvialis*.— F. M. C.

**Warren's 'Taxidermy' and Bird-Laws.**[1]— Dr. Warren writes (Introduction, p. 9): "This Bulletin has been prepared to enable earnest students of ornithological science, who have complied with all the requirements of the act of May 14, 1889 (page 55), to learn some facts concerning the collecting and preservation of birds and their eggs." The object is a worthy one in so far as it relates to "earnest students of ornithological science," but we fear that the wholesale distribution of a pamphlet of this nature will awaken an interest in 'bird-stuffing' and result in the needless destruction of large numbers of birds. Birds mounted on "plush-covered panels" or "bamboo screens" are surely not in use for the "strictly scientific purposes" of the state law (p. 56), and suggestions for purely decorative work of this kind seem out of place in a treatise addressed to "students of ornithological science."

We are surprised to see that in spite of Dr. Warren's efforts Hawks and Owls are not protected by the Pennsylvania law.— F. M. C.

**Ridgway and Lucas on a New Family of Birds.**[2]— In 'The Auk' for April, 1895, p. 186, Mr. Lucas states that "Mr. Ridgway has found it necessary to establish a new family for the reception of the genus *Procnias* but the diagnosis has only recently appeared, in addition to which Mr. Lucas gives in a separate paper the osteological and pterylographical characters. The group has hitherto held the position of a subfamily of the Tanagridæ; and no one familiar with these birds can have failed to notice their aberrant characters, as compared with other Tanagers. Mr. Lucas says, respecting the osteology, that the skull, "in spite of its

[1] Bulletin No. 6. Department of Agriculture. Division of Economic Zoölogy. Taxidermy. How to Collect, Skin, Preserve and Mount Birds. The Game and Fish Laws of the Commonwealth of Pennsylvania. Illustrated. By B. H. Warren, M. D., State Zoölogist, Harrisburg, Pa. Second edition. Clarence M. Busch, State Printer of Pennsylvania, 1896. 8vo. pp. 128, fig. xi.

[2] Characters of a New American Family of Passerine Birds. By Robert Ridgway, Curator of the Department of Birds. Proc. U. S. Nat. Mus., XVIII, No. 1076, pp. 449, 450.

Osteological and Pterylographical Characters of the Procniatidæ. By F. A. Lucas, Curator of the Department of Comparative Anatomy. *Ibid.*, No. 1077, pp. 505–507, with 5 cuts.

superficial resemblance to that of a Swallow is structurally more nearly like that of such a typical Tanager as *Piranga erythromelas;* but in the characters of the palate, *Procnias* departs so widely not only from the Tanagers but from the large majority of Passerine birds, as to warrant the establishment of a separate family for the members of the genus." The pterylographical notes have been contributed by Mr. Hurbert L. Clark, who says that while the pterylosis of *Procnias* is evidently passerine, it "shows no particular leaning to any group." Figures are given of the palatal region of the skull, and of the dorsal feather tracts, the former in comparison with a Swallow and a Tanager, and the latter with those of several species of Tanagers. — J. A. A.

**Montgomery on Migration as a Check upon Geographical Variation**[1].— The evidence is so clearly in favor of Mr. Montgomery's proposition that few doubtless will question the correctness of his main conclusions. While we do not recall having seen the matter formally stated, doubtless the coincidences here stated have not failed of recognition on the part of many students of geographical variation. The author calls attention to the fact that birds which are non-migratory, or which migrate only to a limited extent, in case they have also a wide geographical distribution, are apt to become differentiated into more or less well-marked subspecies under the varying conditions of environment of the widely separated parts of their range, while birds that migrate extensively, say through 30° or more of latitude, even if widely dispersed during the breeding season, seldom show a tendency to become differentiated into subspecies. This he believes is due to the fact that "the influence of the winter environment acts as a check upon the acquisition of adaptations suited alone to the summer environment."— J. A. A.

**Contributions to Economic Ornithology.**— The 'Yearbook of the U. S. Department of Agriculture for 1895', recently issued, contains two noteworthy contributions to economic ornithology. Mr. Sylvester D. Judd reports on the food and general habits of the Catbird, Brown Thrasher, Mockingbird, and House Wren, each species being illustrated with an excellent full-length cut by Mr. J. L. Ridgway. The verdict is favorable to all, as they subsist largely upon injurious insects. The House Wren is "exclusively insectivorous"; the others live partly on fruits, some of which are cultivated.

---

[1] Extensive Migration in Birds as a Check upon the Production of Geographical Varieties. By Thomas H. Montgomery, Jr., American Naturalist, June, 1896, pp. 458–464.

[2] Four Common Birds of the Farm and Garden. By Sylvester D. Judd, Assistant Ornithologist, U. S. Department of Agriculture. Yearbook of the U. S. Department of Agriculture for 1895, pp. 405–418, with 4 cuts.

Prof. F. E. L. Beal[1] writes of the Meadowlark and Baltimore Oriole, which species are also well figured. About 83 per cent of the Oriole's food consists of insects, of which more than one-third are caterpillars. Despite a slight taste for green peas, and a propensity to puncture grapes, the farmer is counselled "to hold his good opinion of the Oriole, and accord it the protection it so well deserves." The food habits of the Meadowlark are almost above reproach; "far from being injurious, it is one of the most useful allies to agriculture, standing almost without a peer as a destroyer of noxious insects."

The 'Report on the Gypsy Moth,' by Mr. Edward H. Forbush and Prof. Charles H. Fernald,[2] recently published under the direction of the State Board of Agriculture of Massachusetts, contains 40 pages (pp. 203–243) on 'The Usefulness of Birds as Insect Destroyers,' prepared by Mr. Forbush as a part of his chapter on the 'Natural Enemies of the Gypsy Moth.'

After several pages of introductory matter on the general subject of the utility of birds as insect destroyers, Mr. Forbush gives a list of 38 species of birds seen to feed on the gypsy moth, only about a dozen of which, however, seem to be especially useful as destroyers of this pest. These are mentioned specifically and in detail, there being a short report about each; then follow remarks about other useful birds, and many pages of field observations, showing how the birds are attracted to the infested localities and their methods of attacking the moth in its various stages of existence. These field notes on the various birds observed give striking evidence of the usefulness of birds as insect destroyers. With such facts before him it is natural that Mr. Forbush should urge better protection for our birds. As Massachusetts is much the same — at least no worse — than other parts of the country, we may well quote the following from Mr. Forbush's appeal for the birds. "While the present laws for the protection of insectivorous birds are wise in the main, no adequate provision

[1] The Meadow Lark and Baltimore Oriole. By F. E. L. Beal, Assistant Ornithologist, U. S. Department of Agriculture. Yearbook of the U. S. Department of Agriculture for 1895, pp. 419–430, with 2 cuts.

[2] The Gypsy Moth, *Porthetria dispar* (Linn.). A Report on the Work of destroying the Insect in the Commonwealth of Massachusetts, together with an Account of its History and Habits both in Massachusetts and Europe. By Edward H. Forbush, Field Director in Charge of the work of destroying the Gypsy Moth, Ornithologist to the State Board of Agriculture, etc., and Charles H. Fernald, A. M., Ph.D., Professor of Zoölogy in the Massachusetts Agricultural College, Entomologist to the State Board of Agriculture, etc. Published under the direction of the State Board of Agriculture by Authority of the Legislature. Boston: Wright & Potter Printing Co., State Printers, 18 Post Office Square. 1896, 8vo. pp. xii + 495 + c, with 5 maps, 65 plates, and numerous cuts.

is made for their enforcement, and they are consequently a dead letter to certain classes of people. A great many birds are killed and many nests broken up by boys. In the fall the country swarms with gunners. Thousands of birds are killed for the milliners. The camps of Italians, where employees engaged on public works are quartered, furnish many of these gunners. These men will shoot birds of any kind, anywhere and on any man's premises. Everything that wears feathers is considered by them as fair game." He advocates the appointment of officers to enforce the laws, and the education of children regarding the usefulness of birds, and holds that it should generally be considered a crime to destroy insect-eating birds. Laws, however good, will not execute themselves, and officers should certainly be provided to rigidly enforce the statutes for the protection of birds.

Mr. Forbush has also recently published a paper on the economic status of the Crow,[1] in which he treats of its migrations and general habits, especially in relation to its food. After commenting at length on previous reports on the food of the Crow, and giving many original observations of his own on the subject, he closes his paper without taking a very decided stand in regard to whether the Crow has been shown to be more useful than destructive to the intrests of the farmer. Finally, after weighing the evidence, pro and con, he says that "from what is now known about the Crow's food we may conclude that, unless the birds become unduly numerous, they are likely to be of great service to the farmer. It will pay the farmer to sacrifice some portion of his products to the Crow, provided he uses care that the cunning bird does not overreach him in the bargain."

A further excellent contribution to the literature of economic ornithology is a series of papers by Miss Florence A. Merriam in recent issues of 'Forest and Stream,' under the title, 'How Birds affect the Farm and Garden', and since separately republished.[2] The introductory pages treat of the losses caused by insects, and the usefulness of birds in holding the insect pests in check; some 40 species of North American birds are then dealt with formally, followed by 'Conclusion', giving a list of some of the most formidable of our insect enemies and of the birds that have been proved to be their natural enemies. Speaking of the scientific investigation of the food habits of birds, Miss Merriam says: "So far as it has gone, the examination of the stomach contents of birds has proved that,

[1] The Crow in Massachusetts. By E. H. Forbush, Ornithologist to the Board. Bulletin of the Massachusetts Board of Agriculture, Ser. of 1896, No. 4, August, 1896, pp. 24–40.

[2] How Birds affect the Farm and Garden. By Florence A. Merriam. Forest and Stream, Vol. XLVII, 1896, No. 6, Aug. 8, pp. 103, 104; No. 7, Aug. 15, pp. 123, 124; No. 8, Aug. 22, pp. 144, 145. Also separate, under the same title, 16mo., pp, 32.

except in rare cases, where individuals attack cultivated fruits and grains our native birds merely preserve the balance of nature by destroying weeds that plague the farmer and by checking the insects that destroy the produce of the agriculturist. The great value of birds is demonstrated. The question is first how to attract them where they have disappeared, and then how to protect the crops from their occasional depredations."

The English Sparrow comes in for severe condemnation. "It has been shown to interfere with seventy kinds of our own birds, most of which nest about houses and gardens and are beneficial to the farm and garden." Its extermination is advocated. "Bounty laws cannot do this, for, as has been clearly demonstrated, they do more mischief than can be easily remedied, as money is usually spent on the heads of valuable birds that have been mistaken for the injurious ones. But the work might be effectively done by State boards or commissioners, who should hire trained assistants to destroy the birds and their nests."

Miss Merriam's articles are illustrated with numerous cuts of the birds and insects especially mentioned, derived mainly from the recent publications on these subjects by the U. S. Department of Agriculture.— J. A. A.

**Publications Received.**— **Alfaro**, Anastasio. Museo Nacional de Costa Rica. Informe presentado al Señor Secretario de Estado en el Despacho de Fomento por Anastasio Alfaro, Administrador del Museo. 4to, 1896, pp. iv + 40.

**Allen**, Francis H. Summer Birds of Willoughby Lake. (St. Johnsbury Caledonian (newspaper), Sept. 11, 1896.)

**Beal**, F. E. L. The Meadowlark and Baltimore Oriole. (Yearbook U. S. Dept. of Agric. for 1895 (1896), pp. 419–430).

**Blasius**, R. V.Berichte über das permanente internationale ornithologische Comité für die Jahre 1891 bis 1895. 8vo, pp. 27, 1896.

**Bocage**, J. V. Barboza du. Mamiferos, Aves e Reptis da Hanha, no Sertão de Benguella. (Jorn. de Sci. math., phys. e nat. da Acad. real das Sci. de Lisboa, Ser. 2, IV, No. xiv, May, 1896.)

**Büttikofer**, J. (1) On a probably new species of *Crypturus*. (Notes from the Leyden Museum, XVIII, pp. 1, 2.) (2) On the Genus *Pycnonotus* and some Allied Genera, with enumeration of the specimens in the Leyden Museum. (*Ibid.*, XVII, pp. 225–252) (3) Rectification of two Generic Names. (*Ibid.*, XVIII, p. 58.) (4) On a New Duck from the Island of Lumba. (*Ibid.*, XVIII, pp. 59–62.) (5) Zoologische Skizzen aus der niederländischen Expedition nach Central Borneo. (Compte-rendu des Séances du Troisième Congrès international de Zoologie, Leyde, 16–21 Sept., 1895, pp. 212–227.)

**Cherrie**, George K. Contributions to the Ornithology of San Domingo. (Field Columbian Mus., Orn. Ser., I, No. 1, pp. 1–26, 1896.)

**Fisher**, A. K. Summer Roosts of Swallows and Red-winged Blackbirds. (The Observer, VII, July, 1896, pp. 382–384.)

**Forbush,** Edward H., and Charles E. Fernald. The Gypsy Moth, *Porthetria dispar* (Linn.). A report of the work of destroying the insect in the Commonwealth of Massachusetts, together with an account of its History and Habits, both in Massachusetts and Europe. Mass. State Board of Agriculture, Boston, 1896, 8vo, pp. xii + 496 + c, with numerous plates and cuts.

**Hartert,** Ernst. On ornithological collections, made by Mr. Alfred Everett, in Celebes and on the islands south of it. (Novitates Zool., III, June, 1896, pp. 148–183.

**Holland,** A. H. Field-notes on the Birds of the Estancia Sta. Elena, Argentine Republic.— Part III. With Remarks by P. L. Sclater. (Ibis July, 1896, pp. 315–318.)

**Homeyer,** E. F. von. Museum Homeyerianum. Verzeichniss der ornithologischen Sammlungen. 8vo, pp. 36.

**Judd,** Sylvester D. Four Common Birds of the Farm and Garden. (Year-book U. S. Dept. of Agric. for 1895, pp. 405–418.)

**Loomis,** Leverett M. California Water Birds, No. III, South Farallon Island in July. (Proc. Cal. Acad. Sci., Ser. 2, Vol. VI. pp. 353–366.)

**Lucas,** F. A. Osteological and Pterylographical Characters of the Procniatidæ. (Proc. U. S. Nat. Mus., XVIII, No. 1077, pp. 505–507.)

**Merriam,** Florence A. How Birds affect the Farm and Garden. 16mo, Sept. 1896. Forest and Stream Publishing Company. Price 5 cts.

**Montgomery,** Thomas H. Extensive migration in Birds as a check upon the production of Geographical Varieties. (Am. Nat., June, 1896, pp. 458–464.)

**Nehrling,** H. North American Birds. Pts. XIV and XV.

**Oberholser,** Harry C. Descriptions of two new Subspecies of the Downy Woodpecker, *Dryobates pubescens* (Linn ). (Proc. U. S. Nat. Mus. XVIII, No. 1080, pp. 547–550.)

**Palmer,** T. S. Bird Day in Schools. (Circular No. 17, U. S. Dept. of Agriculture, Division of the Biological Survey. 8vo. pp. 4, July, 1896.)

**Ridgway,** Robert. (1) Characters of a New American Family of Passerine Birds. (Proc. U. S. Nat. Mus., XVIII, No. 1076, pp. 449, 450.) (2) On Birds collected by Dr. W. L. Abbott in the Seychelles, Amirantes, Gloriosa, Assumption, Aldabra, and adjacent Islands, with notes on Habits, etc., by the Collector. (*Ibid.*, No. 1079, pp. 509–546.)

**Richmond,** Charles W. (1) Catalogue of a Collection of Birds made by Dr. W. L. Abbott in Kashmir, Baltistan and Ladak, with notes on some and a description of a new species of *Cyanecula*. (Proc. U. S. Nat. Mus. XVIII, No. 1078, pp. 451–503.) (2) Catalogue of a Collection of Birds made by Dr. W. L. Abbott, in Eastern Turkistan, the Thian-Shan Mountains, and Tagdumbash Pamir, Central Asia, with notes on some of the species. (*Ibid.*, No. 1083, pp. 569–576.) (3) Description of a New Species of Ant Thrush from Nicaragua. (*Ibid.*, No. 1090, pp. 625, 626.) (4) Partial List of Birds collected at Alta Mira, Mexico, by Mr. Frank B. Armstrong. (*Ibid.*, No. 1091, pp. 627–632.)

**Robinson**, Wirt. An Annotated List of Birds observed on Margarita Island, and at Guanta and Laguayra, Venezuela. (*Ibid.*, No. 1093, pp. 649–685.)

**Sclater**, P. L. Remarks on the Divergencies between the "Rules for Naming Animals" of the German Zoölogical Society and the Strickland Code of Nomenclature. (P. Z. S., 1896, pp. 306–322.)

**Shufeldt**, R. W. On the Affinities of *Harpagornis*. (Trans. New Zealand Inst., XXVIII, p. 666.)

**Swann**, H. Kirke. A concise Handbook of British Birds. Sm. 8vo, pp. vii + 210. London, 1896, John Wheldon & Co. Price, 3*s.* 6*d.*

**Warren**, B. H. Taxidermy. How to Collect, Skin, Preserve and Mount Birds, etc. (Bull. No. 6, Dept. of Agric., State of Penna. 8vo, pp. 128, 1896.)

**Wilson**, Scott B., and A. H. Evans. Aves Hawaiienses: The Birds of the Sandwich Islands. Pt. VI, July, 1896.

**Actes** de la Société Scientifique du Chili. V, 4e Livr., 1896.

**American** Journ. Sci., July–Sept., 1896.

**American** Naturalist, July–Sept., 1896.

**Anales** del Museo nacional de Montevideo, IV, 1896.

**Annals** of Scottish Nat. Hist., July, 1896.

**Aquila**, III, Nos. 1, 2, 1896.

**Bulletin** British Orn. Club, No. 37, 1896.

**Bulletin** of the Wilson Orn. Chapter of the Agassiz Assoc., Nos. 6–9, 1896.

**Forest** and Stream, XLVII, Nos. 1–13, 1896.

**Medical** Age, XIV, Nos. 11–17, 1896.

**Journal** Cincinnati Soc. Nat. Hist., XIX, No. 1, 1896.

**Naturalist**, The, Month. Journ. of Nat. Hist. for North of England, July–Sept., 1896.

**Nidologist**, The, III, Nos. 10–12, 1896.

**Observer**, The, VII, July–Oct., 1896.

**Oregon** Naturalist, III, Nos. 6, 7, 1896.

**Ornis**, VIII, Heft 4, 1896.

**Ornithologische** Jahrbuch, VII, Hefte 4, 5, 1896.

**Ornithologische** Monatsberichte, IV, Nos. 7–9, 1896.

**Osprey**, The, I, No. 1, Sept. 1896.

**Ottawa** Naturalist, X., Nos. 4, 5, 1896.

**Our** Animal Friends, XXXIII, Nos. 10, 11, XXXIV, No. 1, 1896.

**Proceedings** and Transactions of the Nova Scotia Institute of Science, IX, pt. 1, 1896.

**Science**, New Ser., III, Nos. 77–90, 1896.

**Shooting** and Fishing, XX, Nos. 9–21, 1896.

**Yearbook** U. S. Dept. of Agriculture for 1895.

**Zoölogists**, The, Nos. 235–237, 1896.

## GENERAL NOTES.

**Occurrence of the Wood Ibis (*Tantalus loculator*) in Bristol County, Massachusetts.**— Mr. J. W. Critchley, of Providence, Rhode Island, writes me that "late in the afternoon of July 17, 1896, a woman came into the store with a Wood Ibis which her husband had shot that morning at a small mud pond in Seekonk, Massachusetts. It is a young bird but the primaries, secondaries and tail have the black and greenish brown of the adult. The rest of the wings with the back are white. The head is bald but the neck is covered with dark, downy feathers."

This specimen proved, on dissection, to be a male. Mr. Critchley has mounted it and I have just purchased it of him for my New England collection.— WILLIAM BREWSTER, *Cambridge, Mass.*

**Wilson's Snipe in Nova Scotia in Winter.**—During the months of January and February, 1896, I frequently flushed a pair of Wilson's Snipe (*Gallinago delicata*) from a small fresh-water swamp near this town, known as Willow Hollow. This swamp is watered by many springs, situated in a well sheltered place, and remains open all winter.

Is not this pretty far north for these birds to winter? The winter was severe with much snow.— HAROLD F. TUFTS, *Wolfville, Nova Scotia.*

**The Wild Pigeon at Englewood, N. J.**— Mr. C. Irving Wood permits me to record his capture of a Wild Pigeon (*Ectopistes migratorius*) at Englewood, N. J., June 23, 1896. The bird was alone. It has been mounted by Mr. J. Ullrich, a local taxidermist, in whose possession I saw it. It is a young female molting from the first into mature plumage.— FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

**Recent Record of the Passenger Pigeon in Southern Wisconsin.**— On September 8, 1896, I was fortunate enough to be presented with a beautiful immature male Passenger Pigeon (*Ectopistes migratorius*) which was killed that afternoon by a local hunter. It was a single bird and was shot from a dead tree near Delavan Lake; the crop was well filled with acorns and grasshoppers. This is the first record of the capture of the Wild Pigeon here in many years, and I consider myself extremely lucky in obtaining so fine a specimen.— N. HOLLISTER, *Delavan, Wis.*

**The Turkey Vulture in the Catskills.**— Dr. H. H. Rusby informs me that on September 1, 1896, he saw a Turkey Vulture (*Cathartes aura*) at Ulsterville, Ulster County, N. Y. The bird at one time was sailing

about within twenty yards of a number of observers, some of whom were familiar with the species in the South.— FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

**Buteo borealis harlani in Minnesota.**— On April 12, 1893, I secured a beautiful specimen of this Hawk on the prairies of Lac Qui Parle County, near Madison, this State. Mr. Robert Ridgway has examined it and pronounced it not quite adult. He considers this the most northern capture of this species. The following are the data: No. 1500, Collection Albert Lano. Length, 22.50; extent, 54.00; wing, 21.00; tail, 10.00 inches. Weight, 2 lbs. 12 1-2 oz. Ovaries size of no. 4 shot. Stomach empty.— ALBERT LANO, *Aitkin, Minn.*

**A Note on Buteo borealis lucasanus Ridgway.**— This form is usually cited as a 'var.,' and occurs as such in both the old and new A. O. U. Check-Lists, where it is based on "*Buteo borealis* var. *lucasanus* Ridgw. in Coues's Key, 1872, 216." The only reference to this bird at the place cited is: "An unpublished variety from Cape St. Lucas is *B. lucasanus* Ridgway, Mss." It will be noticed, first, that Dr. Coues names the form as a species; second, that the name is a manuscript one, hence under the new practice should be credited to Coues if otherwise correct; third, there is no description, unless the words "Cape St. Lucas" be considered such, which would hardly be justified under either of the three bases given in Canon XLIII of the Code. The correct citation appears to be, Ridgw. in Hist. N. Am. B. III, 1874, 258, 285.— WILLIAM PALMER, *Washington, D. C.*

**Feeding-habits of Purple Finches.**— The following interesting observations on the manner in which Purple Finches (*Carpodacus purpureus*) feed their young are communicated by Mrs. A. C. Davenport, of Brattleboro, Vt. She writes: "During the time the young were in the nest the parents came continually to my window for hemp seed, eating rapidly for ten minutes at a time. They then usually sipped a little water, flew away, and returned in a few moments.

"As soon as the young left the nest, they were brought to my window, and until they could care for themselves, or until a new brood was raised, were still fed by the food being ejected from the crops of the parent birds.

"I never saw any live food given them, though I watched closely, but of course I cannot say decidedly of this. Neither did I see the old birds 'budding' any during this period."— FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

**First Occurrence of the Blue Grosbeak in New Hampshire.**— On May 26, 1894, an adult male Blue Grosbeak (*Guiraca cærulea*), in full plumage, was seen near the house for about twenty minutes; I succeeded in getting within ten feet of the bird, so that I could see all the markings

distinctly without the aid of a glass. I had no means of securing the specimen, but there can be, I think, no doubt as to the identification.

The probability that this was an escaped cage bird at once suggests itself, but it is safe to say that the bird did not belong to anyone in this town or immediate neighborhood. Moreover, the feet and plumage seemed in too good condition for a newly escaped captive.[1]— MABEL C. BERRY, *East Derry, N. H.*

**Solitary Vireo** (*Vireo solitarius*) **nesting in Connecticut.**— June 8, 1894, I found a nest of this species suspended from an alder bush, seven feet from the ground, in a swamp, near West Simsbury, Conn. It contained four eggs.— C. M. CASE, *Hartford, Conn.*

**Dendroica palmarum in New York City.**— An individual of the Palm Warbler was seen by the writer, September 2, 1896, in West 129th Street, New York City, at the base of the prominence upon which stands the Claremont Hotel. The bird is not only rare in this vicinity but the record is an unusually early one. Three of the five recorded instances of its occurrence are based on spring captures at Sing Sing (Fisher) and Riverdale (Bicknell). The two previous fall records are, Fire Island Light, L. I., Sept. 23, 1887 (Dutcher) and Red Bank, N. J., Sept. 28, 1889 (Oberholser).— FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

**Breeding of the Yellow-throated Warbler** (*Dendroica dominica*) **in Virginia, near Washington.**— Since 1889 (Auk, 1889, p. 339), this species has been frequently taken in Alexandria County in July and August. The writer has also taken it in Fairfax County, near Mount Vernon (May 13, 1894; June 4, 1893; June 11, 1893), and has often observed others. He has now to record that Mr. Stephan Rocyski, of Washington, took a set of five eggs on May 2, 1896, about a mile north of Mount Vernon. The nest was found on April 19, about one-fourth built, and was situated on a sloping branch on the south side of a cedar, twelve feet from the ground and forty feet from the south corner of a farmer's porch. It is composed of bits of bark, old grass stems and leaves, small vine tendrils, pieces of string and masses of spider webs. The rim is made of grass stems and the opening is thickly studded with white and gray feathers, so that little of the cavity is seen. Exteriorly it is cup-shaped, four inches deep by three in diameter, and hollowed where it rested on the sloping branch. This is probably the most northern record for the nesting of this species. Mr. Rocyski secured the female and kindly presented it to me.— WILLIAM PALMER, *Washington, D. C.*

---

[1] Previous New England records are: Boardman (Proc. Boston Soc. N. H., IX, 1862, p. 127), near Calais, Me.; Plummer (Bull. N. O. C., V, 1880, p. 184), Brookline, Mass.; and the Grand Menan, N. B., record by Herrick.

**The Louisiana Water-Thrush Breeding in Berkshire County, Mass.**— On the eleventh of June, 1896, I found a pair of Louisiana Water-Thrushes (*Seiurus motacilla*) feeding fledged young, near a clear mountain brook in Sheffield, Berkshire Co., Mass.— WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

**The Mockingbird (*Mimus polyglottos*) in Canada.**— A young Mockingbird taken in the fall of 1894 and sent to me from Sable Island, Nova Scotia, constitutes the fifth record of this species for Canada. The other four are so scattered and have been so often incompletely quoted it seems worth while to review them here. They stand as follows:

I. Strathroy, Ont. (Strathroy Age [newspaper], July 1, 1880; Forest and Stream, XV, Aug. 26, 1880, p. 67; Bull. N. O. C., VI, 1881, p. 112). A single bird was seen in the town but not captured.

II. Chatham, Ont. (Morden and Saunders, Canadian Sportsman and Naturalist, II, Nov. 1882, p. 184; Chamberlain, Cat. Canadian Birds, 1887, p. 110; McIlwraith, Birds of Ontario, revised ed., 1894, p. 388; Piers, Trans. N. S. Inst. Nat. Sci., I, ser. 2, pt. iv, 1895, p. 409).

In point of time, 1860, this is the first Mockingbird taken in Canada. Mr. Edwin W. Sandys, who originally furnished the record, was recently seen by the writer, and he tells me the bird was secured by his father and is now in a collection of stuffed birds made by him. It was seen perched on the ridge pole of a barn one June morning just after a warm southerly gale, and its rich song was what first drew attention to it.

III. Hamilton, Ont. (McIlwraith, Birds of Ontario, 1886, p. 284, revised ed., 1894, p. 388; Chamberlain, Cat. Canadian Birds, 1887, p. 110; Piers, Trans. N. S. Inst. Sci., I, ser. 2, pt. iv, 1895, p. 409). A pair of birds spent the summer of 1883 at East Hamilton.

IV. Truro, N. S. (McLennan, Orn. and Oöl., XIV, Aug. 1889, p. 126; Piers, Trans. N. S. Inst. Nat. Sci., I, ser. 2, pt. iv, pp. 408–410). A bird was wounded and caught alive July 1, 1889. It showed no signs of being an escaped cage bird. Then it was put in a cage, where it lived for three years when it died and was thrown away.

V. Sable Island, N. S. This is a young bird in much worn first plumage, taken in the fall of 1894. I have been unable to obtain any information about the specimen except that it did not come to the island in a cage, and we can only assume it was carried thither by some resistless storm, perhaps from the mainland or more likely from some far more southern home.— JONATHAN DWIGHT, JR., *New York City.*

**Thriothorus or Thryothorus?**— I am interested in Mr. William Palmer's 'Thoughts on the New Check-List,' which suggests some thoughts in me. One of these thoughts is, that Mr. Palmer's criticisms are perfectly candid and sincere, and, therefore, should not be taken *de haut en bas*, but welcomed for anything they offer for the bettering of the Committee's performance. Another thought suggested is, that sometimes

Mr. Palmer is right, sometimes he is wrong, and sometimes he is just 'betwixt and between.' Take the case of the genus whose name, in two forms, heads this paragraph. Mr. Palmer says truly that Vieillot wrote the word *Thriothorus;* for so it appears on p. 45 of my well-thumbed copy of his 'Analyse,' 1816, though this is the page which the A. O. U. Committee cite for *Thryothorus.* But if Mr. Palmer had looked further into Vieillot's 'Analyse,' he would have found *Thryothorus* tucked away near the bottom of the right hand column of p. 70, in an alphabetical list of the new genera of the book, where the etymologies are given. There the etymon of the first element of the word is stated as '**θρύον**, *juncus*'; and as the correct form resulting is *Thryothorus,* I think the Committee can defend their use of it, though they may have to cite p. 70 instead of p. 45 for it. At the same time, it offers a nice case for hair-splitting; for the previous *Thriothorus* of p. 45 cannot be brushed aside as a "typographical error," since Vieillot makes his intention clear by there writing 'THRIOTHORE, *Thriothorus.*' I commend the case to nomenclatural casuists.

While on the genus *Thryothorus,* I may inquire further how it happens that we have changed the name of *T. bewickii leucogaster* (Baird, 1864) to *T. b. bairdi* (Ridgway, 1885). The fact that there is a *Troglodytes leucogastra,* Gould, P. Z. S., 1836, p. 89 (which Baird mistook for the subspecies of *Thryothorus bewickii* which he named *leucogaster* in Rev. A. B., 1864, p. 127) does not affect the case one way or another. Gould's bird is now *Uropsila leucogastra;* it is also *Cyphorhinus pusillus* of Sclater, *Hetorhina pusilla* of Baird, etc., and this cannot outlaw the use of the name *leucogaster* in the genus *Thryothorus.* Bewick's Wren has never been referred to the genus *Troglodytes* since one of its subspecies was called *leucogaster,* and of course there is no rule of nomenclature, express or implied, which requires us to change a specific name in one genus for the reason that the same has been used in another genus. Parity of reasoning — or rather, of unreasoning —would require us to reject *Cistothorus marianæ,* because there was a prior *Troglodytes marianæ.* I submit, therefore, that *Thryothorus bewickii bairdi,* No. 719*b* of the A. O. U. Lists, 1886 and 1895, should stand as *T. b. leucogaster.*— ELLIOT COUES, *Washington, D. C.*

**The Hudsonian Chickadee breeding in Southern Vermont.**— On June 29, 1895, I found two Hudsonian Chickadees (*Parus hudsonicus*) and one Black-poll Warbler (*Dendroica striata*) on the summit of Stratton Mountain in southern Vermont. According to the U. S. Geological Survey the altitude of Stratton Mountain is 3859 feet, and these birds were observed at an altitude of about 3800 feet. The latitude is about 43° 6′— 26 miles north of the Massachusetts line. As far as I can learn, the Hudsonian Chickadee has never been recorded from as far south in the breeding season. The Black-poll Warbler has been found by Mr. Bicknell and others in the Catskills, but I can find no other more southern record for it.— FRANCIS H. ALLEN, *West Roxbury, Mass.*

**The Hudsonian Chickadee (*Parus hudsonicus*), Red-breasted Nuthatch (*Sitta canadensis*), and Golden-crowned Kinglet (*Regulus satrapa*) in Plymouth County, Mass., in Summer.**— While walking through some dense old-growth pine woods (*Pinus strobus* and *P. rigida*,) on June 5, 1896, I was greeted by the snarl *chee-dè-e-e-e-e-ah* of a Hudson Bay Titmouse. In a few moments the bird, which was apparently alone, alighted within a few feet of me on a dead pine, and spent some time in exploring the cavities of a broken limb, from which he drew several lively white larvæ, one of them so large that it was swallowed with seeming difficulty but evident relish. The characteristic note was frequently uttered while feeding, but was sometimes shortened to *dee-e-e-e-yàh*. The bird then flew to a high pitch pine, and I did not see him again, though I heard him several times.

The woods in which I saw the Chickadee were only a few rods from a large cedar swamp, said to be a couple of miles wide, which is seldom visited except by lumbermen in winter; and in many portions the original growth of huge white cedars (*Cupressus thyoides*) and hemlock (*Abies canadensis*) has never been cut. In this old timber one seems to be in northern Maine or New Hampshire, instead of in Massachusetts;—the subdued half twilight of the damp cool forest, with its rocks and fallen trees, covered with a rich carpet of green moss and ferns might well tempt this and other northern birds to make it their summer home.

I saw nothing more of the Chickadee however; but throughout June and July Brown Creepers (*Certhia familiaris americana*) were quite often seen in the swamp; the Hairy Woodpecker (*Dryobates villosus*) outnumbered the smaller Downy (*D. pubescens*); and at least two pairs of Golden-crowned Kinglets (*Regulus satrapa*) spent the summer, newly fledged young being noted during the first week in August. One, and I think several, pairs of Red-breasted Nuthatches (*Sitta canadensis*) evidently nested here also, though I failed to find the nest; and fresh 'peck-holes', as well as the local lumbermen, testified to the presence of the Pileated Woodpecker (*Ceophlœus pileatus*) during the past year[1].—ARTHUR P. CHADBOURNE, M. D., *Boston, Mass.*

[1] In Massachusetts, the *Hudsonian Chickadee* has been recorded only during the winter and early spring.

Although the *Brown Creeper*, "has been twice found nesting in eastern Massachusetts and once at Springfield, its normal summer range is limited very strictly to the Canadian fauna. It breeds regularly on Mt. Graylock in western Massachusetts" (Brewster, in Minot's Birds of New England, second edition, 1895, p. 66).

*Regulus satrapa* has been found breeding "in the higher portions of Berkshire and Worcester Counties, Massachusetts. A single well-authenticated nest has been taken at Lynn, Massachusetts" (Brewster, loc. cit., p. 52).

*Sitta canadensis*, like the Kinglet, breeds in "Berkshire and Worcester Counties, Mass." (Brewster, loc. cit., p. 64).

The *Pileated Woodpecker* is now so unusual in eastern Massachusetts as to be almost a straggler.

**The Western Martin and the California Cuckoo at Escondido, Calif.**—On June 11, 1896, three or four pairs of black, swallow-like birds were seen flying swiftly about, and were seen to alight occasionally upon the eaves of the college building of that place. On June 12 I was fortunate enough to secure an adult female, which proved to be *Progne subis hesperia*. This bird had a soft-shelled egg in her oviduct.

August 20, while out hunting for a Road-runner, I saw a bird that was new to me. It seemed very tame and had a long tail, similar to a Dove, but the flight was quite slow and resembled that of a Sparrow Hawk. It proved to be a fine male *Coccyzus americanus occi[illegible]'is* and measured as follows: Length, about 12.50 inches; wing, 7.00; tail, 6.00; bill 1.00. Iris hazel. This specimen was taken among sumac bushes on a foothill. On Aug. 22 another bird of the same species was noted.—J. MAURICE HATCH, *Escondido, Calif.*

**Bird Notes from Toronto, Canada.—Somateria spectabilis.** KING EIDER.—Nov. 18, 1895, I took an adult male of this species in the most perfect mature plumage I have ever seen. The bird was alone and very wild. Immature birds of this species are not uncommon late in the autumn on Lake Ontario, but adult birds are extremely rare.

**Porzana noveboracensis.** YELLOW RAIL.—Sept. 12, 1894, I took a female in the marshes east of Toronto, and a male at the same place, Sept. 4, 1895; also a specimen on Oct. 3, and still another on Oct. 15, of the same year.

I have never succeeded in finding this species in the spring, nor in summer before the month of August.

**Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—On August 29, 1891, I found and secured an adult female of this species in an old field north of Toronto, the bird was a long distance from any marsh or water. On June 7, 1895, I captured an adult male in a wet meadow east of Toronto. There were no rushes near this place but the grass was very rank.—C. W. NASH, *Toronto, Canada.*

**Iridescence of Feathers, as explained by an Old Author.**—The modern theory that the play of colors seen in some feathers is due to the action of minute irregularities on the surface of the barbs and barbules, composing the vane, which, like a multitude of small prisms, split up the light into differently colored rays, was proposed more than two hundred years ago.

In 1666, Robert Boyle, the chief instigator and one of the most active members of the Royal Society, published a book on 'The Causes of Colors'[1] in which he treats the subject chiefly from a chemical and

[1] Experiments | and | Considerations | Touching | Colours | . . . . (Three lines). The | Beginning | Of An | Experimental History | Of | Colours.‖ By the Honourable Robert Boyle, | Fellow of the Royal Society. | . . . (Motto). London, | Printed for Henry Herringman at the | Anchor in the Lower walk of the New | Exchange. MDCLXIV.

physical standpoint. After ascribing the play of colors in various objects to the physical action of structural differences on the light, not to the coloring matter of the part, he speaks of the prismatic colors seen in certain feathers when examined against a strong light (p. 244, 245); and also states that the wonderful revelations of the microscope, then in its infancy, would doubtless show in such feathers minute prism-like structures as the cause of the iridescence — an interesting prophecy in the light of our present knowledge.— ARTHUR P. CHADBOURNE, *Boston, Mass.*

**Birds Killed by a Storm.**— About 11 o'clock P. M., on August 3, a terrific electric storm, accompanied by hail and wind, struck this city. Next morning the streets around the public parks and residence portions were literally covered with dead English Sparrows and a few Robins and other small birds. On one block in the residence portion of the city there were, by actual count, six hundred and twenty-two dead Sparrows, and one Robin. The nests containing eggs and young were blown down, and birds not killed by the fall were killed by the hail. Most of the old birds escaped, but the young, from just hatched to a couple of months old, were mostly killed, and had to be raked off the lawns and gathered up by street sweepers. A few more such storms would rid us of the detestable Sparrow.— WALTER I. MITCHELL, *St. Paul, Minn.*

## NOTES AND NEWS.

THOMAS LYTTLETON, LORD LILFORD, late President of the British Ornithologists' Union, and Corresponding Member of the American Ornithologists' Union, died at Lilford Hall, Oundle, Northamptonshire, England, June 17, 1896, at the age of 63 years. He was one of the founders of the British Ornithologists' Union, and a prominent contributor to the early volumes of 'The Ibis.' Among his larger works are his 'Birds of Northamptonshire,' and 'Illustrations of British Birds.' He was enthusiastically interested in Hawking and in the study of live birds, his extensive aviaries containing many different kinds of Birds of Prey, Storks, Ibises, Herons, and Water-fowl. "His loss," says 'The Zoologist,' "will be deplored, not only by the learned societies of which he was so distinguished a member, but by a very large circle of friends and acquaintances to whom he had endeared himself by an unfailing kindness of heart and constant readiness to help."

EUGENE CARLETON THURBER, an Associate Member of the American Ornithologists' Union, died at Alhambra, California, on September 6, 1896, at the age of thirty-one years. Mr. Thurber will be known to the readers of 'The Auk' chiefly through his excellent 'List of the Birds of Morris County, New Jersey,' reviewed in the fifth volume of this journal (1888, p, 421). Shortly after its publication he removed to California, where he hoped to actively continue his ornithological pursuits. He was a careful observer and skilled collector, ever ambitious to win the esteem of his fellow-workers, but failing health so handicapped his efforts that he was never able to do justice to his own high aspirations. During the past two years he has lived an out-of-door life in the field, collecting birds and mammals, as his health would permit, and preserving to the end his love for his favorite study.

DR. GEORGE BROWN GOODE, Assistant Secretary of the Smithsonian Institution and Curator of the U. S. National Museum, died suddenly of pneumonia at his home in Washington on September 6, 1896, at the age of 45 years. Although Dr. Goode was not an ornithologist, through his position for nine years as Assistant Secretary of the Smithsonian Institution, in charge of the National Museum, ornithology, in common with other branches of natural history, is deeply indebted to him for his liberality in promoting its interests. As a personal friend and adviser, he was so well-known, not only to ornithologists, but to investigators in all branches of zoölogy, that a few words *in memoriam* of this distinguished naturalist are particularly fitting in the pages of 'The Auk.' Dr. Goode was especially eminent as an ichthyologist, and is the author of a long list of important papers and standard works on the fishes and fishing industries of North America; his last work, 'Oceanic Ichthyology, written in conjunction with Dr. Tarleton H. Bean, was published only shortly before his death. He combined in rare degree administrative ability with talent as a scientific investigator, and a charming personality that easily smoothed the way to success in whatever he undertook. As a museum director he was doubtless without a peer, and had justly a world-wide reputation as an expert in all matters of museum administration. Stricken down thus suddenly in the prime of life and at the height of his usefulness, his loss to science, and especially to the National Museum, with which he had been officially connected for twenty-three years, seems well-nigh irreparable. When his predecessor in office, the late Professor Baird, passed away, Goode proved to be the man pre-eminently fitted to take up his official duties and carry on his work. But where can be found a man so perfectly equipped to bear the mantle of Goode?

THE question of establishing a Bird Day in the schools has been made the subject of a special circular (No. 17) by the Biological Survey of the Department of Agriculture. The plan suggested cannot be too heartily endorsed; its adoption throughout the land would be an inestimable

benefit. Not alone would children learn to know something of the interest and pleasure attached to study of birds, and of their economic value, but they would be brought in touch with nature in a manner which could not fail to arouse their best instincts.

The matter is very forcibly put in a letter from the Hon. J. Sterling Morton, Secretary of Agriculture. He writes: " . . . the study of birds tends to develop some of the best attributes and impulses of our natures. Among them we find examples of generosity, unselfish devotion, of the love of mother for offspring and other estimable qualities. Their industry, patience, and ingenuity excite our admiration; their songs inspire us with a love of music and poetry; their beautiful plumages and graceful manners appeal to our esthetic sense; their long migrations to distant lands stimulate our imaginations and tempt us to inquire into the causes of these periodic movements, and finally, the endless modifications of form and habits by which they are enabled to live under most diverse conditions of food and climate — on land and at sea — invite the student of nature into inexhaustible fields of pleasurable research."

Mr. James M. Southwick, well-known as a commercial naturalist, has recently been appointed Curator of the Museum of Natural History, lately established by the authorities of the city of Providence R. I., in Roger Williams Park. A building has been erected at a cost of $40,000, a portion of which will be devoted to museum purposes, as required.

It is Mr. Southwick's intention to make the collections under his care instructive, as well as attractive and popular. To this end he will devote especial efforts to securing representative collections of the local fauna and later to the formation of small loan collections which can be used by teachers in their class-rooms. Much valuable material is already available for general exhibition.

The first number of 'The Osprey, an Illustrated Monthly Magazine of Ornithology,' bears date September, 1896. It is a royal octavo of 16 pages, tastefully arranged and well printed, with numerous photographic illustrations, including a full-page half-tone plate of the nest of the Ferrugineous Rough-legged Buzzard, with papers by well-known ornithologists. There is doubtless plenty of room for a journal like 'The Osprey,' and we trust it will meet with the cordial support its opening number so well merits. It is edited by Walter A. Johnson and Dr. A. C. Murchison, with the office of publication at 217 Main Street, Galesburg, Ill.

The German Zoölogical Society has undertaken the gigantic task of publishing a systematic work on zoölogy, under the title 'Das Tierreich. Eine Zusammenstellung und Kennzeichnung der rezenten Tierfor men.' This immense work, it is thought, will require nearly one hun-

dred large 8vo volumes of about 800 pages each. The general editorship has been undertaken by Prof. F. E. Schulze, of Berlin, and the publication by Messrs. R. Friedländer and Son. According to the prospectus the Class Aves has been assigned to able hands. For example, it is announced that Graf Hans von Berlepsch will write the parts relating to the Icteridæ, Tanagridæ, Dendrocolaptidæ, and Tyrannidæ; Mr. Ernst Hartert, those relating to the Micropodidæ, Trochilidæ, Caprimulgidæ, and Podargidæ; Mr. Ogilvie-Grant, the Phasianidæ; Dr. Reichenow, the Sturnidæ, Ploceidæ, and Psittacidæ; Mr. L. W. Rothschild, the Paradiseidæ; Dr. R. B. Sharpe, the Vulturidæ, Falconidæ, and the Strigidæ.

The work will comprise the synonymy, short descriptions, and geographical range of every known species of animal, with diagnoses of the higher groups, etc. A 'Probe-Lieferung,' by Dr. O. Bütschli, of the Heliozoa, has been issued. The arrangement of the matter, in respect to typography, is excellent, and the general make-up is very attractive. Orders for the work should be addressed to R. Friedländer and Sohn, Carlstrasse, 11. Berlin, N. W.

Miss Florence A. Merriam's papers on 'How Birds Affect the Farm and Garden,' noticed in this issue, have been republished by the 'Forest and Stream' Publishing Company as a 32-page pamphlet, which can be procured of the publishers (318 Broadway, New York City) at the nominal price of five cents per copy; special prices being made to individuals or Bird Protection Societies, who may wish it in quantities for distribution.

We learn that the concluding 'Part IV' of Professor Alfred Newton's excellent 'Dictionary of Birds' is already in press, and that its early publication may be expected.

As we go to press we are in receipt of Volume XXIV of the British Museum 'Catalogue of Birds,' containing the Limicolæ, by Dr. R. Bowdler Sharpe. It forms a thick volume of over 800 pages, with seven colored plates.

We are also pleased to announce the appearance of the second part of Captain Bendire's 'Life Histories of North American Birds,'—a volume of 500 pages and seven plates, containing about 200 figures. It includes the species from the Parrots to the Grackles.

# INDEX TO VOLUME XIII.


ACANTHIS linaria rostrata, 245.
Acanthiza pusilla, 44.
Accipiter cooperii, 212, 293.
velox, 177.
[illegible]titis macularia, 215, 281, 292.
[illegible]gialitis meloda circumcincta, 256.
pamirensis, 331.
thoracica, 331.
vocifera, 215, 281.
Agelai[illegible]phœniceus, 4, 212, 221, 242, [illegible]
[illegible]9, 215.
[illegible], 303.
[illegible]is H., the Hudsonian [illegible] breeding in southern [illegible]ont, 345.
Allen, J. A., note on the taxonomic value of the tongue in birds, 114; Gätke's 'Heligoland', 137; notice of his paper on 'Alleged Changes of Color in the Feathers of Birds without Molting', 166; comment on 'Some questions of Nomenclature', 187; comment on 'A question of Nomenclature', 191; [zoölogical nomenclature], 269.
Amazilia alicæ, 333.
Ameghino, Florentino, notice of his 'Sur les Oiseaux Fossiles de Patagonie', 61.
American Ornithologists' Union, Thirteenth Congress of, 55; Check-List of North American Birds, Second Edition, noticed, 69; Committee on Protection of Birds, report of, 98.
Ammodramus caudacutus, 271, 275.
caudacutus becki, 273.
caudacutus nelsoni, 245, 272, 273, 275.
caudacutus subvirgatus, 273, 276.
leconteii, 207, 208, 214.
Ammodramus sandwichensis savanna, 241, 283, 292, 294.
savannarum passerinus, 294.
Ampelis cedrorum, 114, 213, 284, 295.
Anas boschas, 200.
carolinensis, 215.
chlorotis, 162.
erythrophthalma, 170.
maculosa, 162.
obscura, 182, 199.
penelope, 255.
scutulata, 162.
streperr, 201.
Anser albifrons gambeli, 162.
anser, 164.
fabalis, 244.
ferus, 164.
sandvicensis, 162.
segetum, 244.
Anthony, A. W., a new subspecies of the genus *Dryobates*, 31; *Puffinus tenuirostris* off San Diego, California, 171; *Clangula hyemalis* at San Diego, California, 172; the Black-vented Shearwater (*Puffinus opisthomelas*), 223; the Road-runner as a rat-killer, 257.
Anthus pensilvanicus, 214.
Antrostomus carolinensis, 214.
vociferus, 282.
Aphelocoma californica, 120.
couchi, 36, 37.
gracilis, 34.
Aquila chrysaëtos, 81, 82, 256.
glaucopis, 266.
Ardea cœrulea, 215.
egretta, 178, 215.
occidentalis, 172.
tricolor ruficollis, 215.
virescens, 215, 281, 292.
Ardetta exilis, 11.
neoxena, 11, 59, 79.
Arenaria interpres, 181.

Asarcornis, 162.
scutulata, 162.
Asio accipitrinus, 88, 257.
Aythya, 162.
affinis, 202, 215.
americana, 201.
collaris, 202, 215.
marila, 202.
marila nearctica, 162.
vallisneria, 89, 201.

Baily, Wm. L., Western Sandpiper (*Ereunetes occidentalis*) more abundant than the Semipalmated (*E. pusillus*), 174; summer birds of Northern Elk County, Pa., 289.
Baker, Carl F., an important factor in the study of western bird-life, 20.
Ball, Helen A., *Pinicola enucleator* at Worcester, Mass., 259.
Barbour, Erwin H., the occurrence in Nebraska of *Vireo flavoviridis*, 263.
Bartramia longicauda, 89.
Basket, James Newton, intergradation in song of *Sturnella magna* and *S. m. neglecta* in Missouri, 258.
Beal, F. E. L., notice of his paper on 'The Meadowlark and Baltimore Oriole', 336.
Beddard, Frank E., notice of his 'Text-book of Zoögeography', 73.
Belding, L., songs of the Western Meadowlark, 29.
Bendire, Charles, notice of his paper on 'The Cowbirds,' 71.
Berier, DeLagnel, the Pine Grosbeak in New Jersey, 175.
Bernicla nigrescens, 4.
Berry, Mabel C., first occurrence of the Blue Grosbeak in New Hampshire, 342.
Bishop, Louis B., descriptions of a new Horned Lark and a new Song Sparrow, with remarks on Sennett's Nighthawk, 129.
Bittern, Cory's Least, 11, 79.
Least, 11.
Blackbird, 298, 307, 311.
Brewer's, 120.
Red-winged, 4, 221, 294.
Rusty, 221.
Yellow-headed, 120.
Blackcap, 306, 311.
Bluebird, 222, 238, 285, 297.
Western, 124.
Bluethroat, Red-spotted, 142.
Bobolink, 158, 294.
Bob-white, 221, 281.
Bonasa umbellus, 281, 292.
Botaurus lentiginosus, 215.
Brackett, Foster H., the Belted Piping Plover in Massachusetts, 256; the Re-dheaded Woodpecker in eastern Massachusetts, 258.
Braislin, William C., the Golden Eagle in New Jersey, 81; notes on Long Island birds, 87.
Brant, Black, 4.
Branta canadensis, 92.
Brewster, William, descriptions of a new Warbler and a new Song Sparrow, 44; occurrence of the Wood Ibis (*Tantalus loculator*) in Bristol County, Mass., 341.
Brock, Henry H., the King Rail again in Maine, 79; *Crymophilus fulicarius* in Maine, 173; *Crex crex* in Maine, 173; recent occurrence of the Florida Gallinule in southern Maine, 255; recent capture of the Golden Eagle near Portland, Maine, 256.
Brown, Nathan Clifford, Baird's Sandpiper in Maine, 80; the Ipswich Sparrow — a correction, 84; the American Crossbill at sea, 176; second occurrence of the Blue-gray Gnatcatcher in Maine, 264.
Browne, Montagu, notice of his 'Artistic and Scientific Taxidermy and Modelling,' etc., 247.
Bruner, Lawrence, notice of his 'List of Nebraska Birds,' 245.
Bubo arcticus, 154.
pacificus, 154.
subarcticus, 153.
virginianus, 155, 293.
virginianus arcticus, 156.
virginianus occidentalis, 155.
virginianus pacificus, 156.
virginianus saturatus, 155, 257.
Bucco bicinctus, 332.
Buckley, T. E., see Harvie-Brown, J. A.
Bunting, Indigo, 283, 291, 295.
Lazuli, 121.
Bush-tit, Californian, 123.
Buteo borealis, 212, 293.

Buteo borealis harlani, 342.
borealis lucasanus, 342.
lineatus, 222.
Butorides robinsoni, 333.

Calcarius lapponicus, 86.
Calidris arenaria, 215.
Callipepla californica vallicola, 81, 116, 265.
californica vallicola + C. gambelii deserticola, 265.
gambelii, 185.
Callothrus robustus, 71.
Camarhynchus bindloei, 330.
compressirostris, 330.
incertus, 330.
Campephilus principalis, 213.
Cardinal, 218, 238.
Cardinalis cardinalis, 213, 218, 238.
robinsoni, 333.
Carduelis carduelis, 238.
Carpodacus mexicanus frontalis, 120.
purpureus, 214, 222, 283, 291, 292, 294, 342.
Casarca casarca, 164, 243.
rutila, 164.
Case, C. M., Solitary Vireo (*Vireo solitarius*) nesting in Connecticut, 343.
Casuarius casuarius, 164.
galeatus, 164.
Catbird, 218, 238, 285, 296, 335.
Cathartes aura, 116, 212, 222, 341.
Catharista atrata, 212.
Cedarbird, 283, 291, 295.
Ceophlœus pileatus, 213, 220, 346.
Certhia familiaris albescens, 315.
familiaris alticola, 315, 316.
familiaris americana, 213, 220, 292, 296, 346.
familiaris mexicana, 315, 316.
mexicana, 315, 316.
mexicana albescens, 315.
Ceryle alcyon, 238, 281.
Chadbourne, Arthur P., evidence suggestive of the occurrence of 'individual dichromatism' in *Megascops asio*, 321; the Hudsonian Chickadee (*Parus hudsonicus*), Red-breasted Nuthatch (*Sitta canadensis*), and Golden-crowned Kinglet (*Regulus satrapa*) in Plymouth County, Mass., in summer, 346; iridescence in feathers, as explained by an old author, 347.
Chætura pelagica, 82, 214, 282, 293.
Chaffinch, 302, 306.
Chamberlain, Montague, notice of his 'Common Birds of Eastern Canada,' 67.
Chamæa fasciata henshawi, 122.
Chapman, Frank M., the standing of *Ardetta neoxena*, 11; notice of his paper on 'The Changes of Plumage in the Dunlin and Sanderling,' 164; notice of his paper 'On the Changes of Plumage in the Snowflake (*Plectrophenax nivalis*),' 165; the Turkey Vulture in the Catskills, 341; the Wild Pigeon at Englewood, N. J., 341; feeding habits of Purple Finches, 342; *Dendroica palmarum* in New York City, 343.
Charadrius dominicus, 80, 89, 91, 142.
pluvialis, 146.
squatarola, 181, 182.
Charitonetta, 163.
albeola, 202, 215.
Chat, Yellow-breasted, 285.
Chelidon erythrogaster, 4, 214, 283, 295.
Chen hyperboreus, 193.
hyperboreus nivalis, 161, 243.
nivalis, 193.
Cherrie, George K., *Ardetta neoxena* from Wisconsin, 79; an apparently new *Chordeiles* from Costa Rica, 135; notice of his 'Contribution to the Ornithology of San Domingo,' 333.
Chewink, 178, 291, 294.
Chickadee, Black-capped, 220, 285, 297.
Hudsonian, 345, 346.
Chloronerpes striatus, 333.
Chondestes grammacus, 84, 179.
grammacus strigatus, 120.
Chordeiles acutipennis, 333.
virginianus, 159, 215, 282.
virginianus asserriensis, 136.
virginianus sennetti, 134.
Cinclus aquaticus, 169.
Circus hudsonius, 212.
Cistothorus palustris, 242.
stellaris, 194, 214, 347.
Clangula, 163.
clangula, 164.
clangula americana, 215.
glaucion, 164.
hyemalis, 164, 172, 202.

Clivicola riparia, 283.
Coccothraustes vespertinus, 259.
Coccyzus americanus, 259, 281, 333.
americanus occidentalis, 347.
erythrophthalmus, 212, 281. 293.
ferrugineus, 75.
Cocornis agassizi, 75.
Colaptes auratus, 212, 220, 281, 293.
cafer, 85, 118.
Colinus virginianus, 215, 221.
Collocalia, 83, 114.
Columbigallina passerina terrestris, 215.
Compsothlypis americana, 45, 214, 283, 295.
americana usneæ, 44.
Comstock, F. M., the Parasitic Jaeger near Cleveland, Ohio, 171.
Contopus borealis, 85, 282.
richardsonii, 120.
virens, 214, 282, 293.
Cook, A. J., food of Woodpeckers and Flycatchers, 85.
Cormorant, 312.
Double-crested, 90.
Corvus americanus, 212, 283, 288, 294.
corax principalis, 83.
Cory, Charles B., notice of his 'Hunting and Fishing in Florida', etc., 246.
Coscoroba candida, 163.
coscoroba, 163.
Cosmonessa, 163.
Cotinga cuprea, 266.
rubra, 266.
Coues, Elliott, an early description of *Phalacrocorax dilophus*, 78; name of the Large-billed Puffin, 255; Merrem's Work, 265; Mandt's Inaugural Dissertation, 266; *Thriothorus* or *Thryothorus*, 344.
Covert, Adolphe B., Baird's Sandpiper in Michigan, 255.
Cowbird, 283.
Crake, Corn, 173.
Creagrus furcatus, 75.
Creeper, Brown, 306, 346.
Mexican, 315.
Crex crex, 173.
Crossbill, American, 176, 179.
White-winged, 210.
Crow, 220, 283, 285, 337.
Crymophilus, 65.
Crymophilus fulicarius. 173.
Cuckoo, Black-billed, 281, 293.
California, 347.
Yellow-billed, 281, 333.
Curlew, Eskimo, 80, 89, 91, 182.
Long-billed, 181.
Pink, 209.
Cyanecula abbotti, 331.
suecica, 142.
Cyanocitta cristata, 212, 221, 282, 294.
Cygnus cygnus, 163.
musicus, 163.
Cyphorinus pusillus, 345.
Cypseloides, 83.
Cypselus apus, 303.

DAFILA acuta, 200.
Davis, W. M., the soaring of birds and currents of air, 92.
Deane, Ruthven, additional records of the Passenger Pigeon (*Ectopistes migratorius*) in Wisconsin and Illinois, 81; some notes on the Passenger Pigeon (*Ectopistes migratorius*) in confinement, 234; record of a fourth specimen of the European Widgeon (*Anas penelope*) in Indiana, 255.
De Haven, I. N., Brünnich's Murre at Cape Charles, Virginia, 271.
Delaware Valley Ornithological Club, 193.
Dendrocopos montanus. 190.
Dendroica æstiva, 214, 283, 295.
auduboni, 121.
aureola, 75.
blackburniæ, 292, 296.
cærulea, 179.
cærulescens, 214, 242, 292, 295.
castanea, 88, 181.
coronata, 214, 220.
discolor, 214.
dominica, 214, 343.
maculosa, 283, 292, 295.
palmarum, 181, 214, 343.
palmarum hypochrysea. 214.
pensylvanica, 283, 292, 296.
ruficapilla, 263.
striata, 214, 345.
tigrina, 84, 87, 181, 207, 214.
vigorsii, 214.
virens, 283, 292, 296.
Dendroplex longirostris, 333.
Diomedea chionoptera, 161.

Diver, Great Northern, 77.
Doleromya pallida, 333.
Dolichonyx oryzivorus, 213, 294.
Dove, Carolina, 281.
Turtle, 310.
Dowitcher, 180.
Long-billed, 88, 180.
Dryobates borealis, 210, 213.
major, 190.
montanus, 191.
pubescens, 213, 281, 293, 330, 346.
pubescens meridionalis, 330.
pubescens nelsoni, 330.
villosus, 174, 281, 293, 346.
villosus auduboni, 213.
villosus harrisi, 34, 85.
villosus hyloscopus, 34.
villosus montanus, 32, 34, 190.
Dryolimnas aldabranus, 332.
Duck, Black, 182.
Canvas-back, 90, 201.
Dusky, 199.
Harlequin, 78, 202, 229.
Long-tailed, 202.
Pintail, 200.
Ringneck, 202.
Ruddy, 203.
Scaup, 202.
Wood, 199.
Dulus dominicus, 333.
Dunlin, 150, 164.
Dutcher, William, *Chen hyperborea* and *C. nivalis*, 193.
Dwight, Jonathan, Jr., the Sharp-tailed Sparrow (*Ammodramus caudacutus*) and its geographical varieties, 271; the Mockingbird (*Mimus polyglottos*) in Canada, 344.

Eagle, Golden, 256.
Eaton, Elan Howard, bird notes from Erie County, N. Y., 178.
Ectopistes migratorius, 4, 81, 215, 234, 290, 341.
Egret, American, 178.
Eider, American, 202.
King, 203, 347.
Elainea cherriei, 334.
Elasmonetta, 162.
chlorotis, 162.
Elliot, D. G., in memoriam: George Newbold Lawrence, 1; descriptions of an apparently new species and subspecies of Ptarmigan from the Aleutian Islands, 24; notice of his monograph of the Pittidæ, 60; notice of his North American Shore Birds, 64; notice of his African expedition, 196, 268.
Emberiza citrinella, 303.
Empidonax difficilis, 85.
minimus, 282, 292, 293.
pusillus, 85.
Ereunetes occidentalis, 88, 174.
pusillus, 174.
Erismatura æquatorialis, 162.
jamaicensis, 163.
rubida, 163, 203.
Erithacus rubecula, 300.
Eupsychortyx pallidus, 332, 333.

Falco sparverius, 88, 212, 281, 293.
sparverius deserticolus, 116.
Faxon, Walter, John Abbot's drawings of the birds of Georgia, 204; *Helminthophila rubricapilla vs. Helminthophila ruficapilla*, 263; the Louisiana Water-Thrush in Berkshire County, Mass., 344.
Ficedula ludoviciana, 44.
Finch, Grass, 291, 294.
House, 120.
Lark, 120.
Lazuli, 120.
Painted, 261.
Purple, 222, 283, 294, 342.
Fisher, A. K., notice of his 'Hawks and Owls from the Standpoint of the Farmer,' 73;
Flicker, 280, 281, 293.
Red-shafted, 118.
Flycatcher, Ash-throated, 119.
Crested, 280, 282.
Least, 282, 293.
Olive-sided, 282.
Scissor-tailed, 83.
Forbush, Edward H., notice of his remarks on 'The usefulness of Birds as Insect Destroyers,' 336; notice of his 'The Crow in Massachusetts,' 337.
Foster, L. S., *Pinicola enucleator* in Westchester County, N. Y., 175.
Fratercula arctica, 189.
arctica glacialis, 185, 189.
Fringilla chlorura, 185, 188.
caudacuta, 272.
cœlebs, 302.

Fringilla iliaca, 266.
littoralis, 272.
Fulmarus glacialis, 162.
glacialis glupischa, 162.
glacialis minor, 162.
glacialis rodgersii, 162.
Furness, Caroline E., the Pine Grosbeak at Poughkeepsie, N. Y., 175.

GADWALL, 201.
Galeoscoptes carolinensis, 214, 219, 238, 285, 296.
Galeripitta, 60.
cucullata, 60.
Gallinago delicata, 215, 341.
Gallinula galeata, 215, 255.
Gallinule, Florida, 255.
Ganong, W. F., do young Loons eat fresh-water clams? 77.
Gaylord, Horace A., *Pyrocephalus rubineus mexicanus* in Los Angeles County, Cal., 258; *Zonotrichia albicollis* and *Mniotilta varia* at Pasadena, Cal., 260.
Gelochelidon anglica, 161.
nilotica, 161, 215.
Geococcyx californianus, 117, 257.
Geospiza fatigata, 330.
pachyrhynca, 330.
Geothlypis flaveolatus, 331.
philadelphia, 179.
trichas, 214, 285, 296.
Gilman, Arthur Scott, a Brown Thrasher (*Harporhynchus rufus*) in Massachusetts in winter, 176.
Glaucion, 163.
Glaucionetta, 163.
clangula americana, 163, 202.
islandica, 202.
Gnat-catcher, Blue-gray, 264.
Western, 123.
Goldfinch, American, 283, 291, 294.
European, 238,
Golden-eye, 202.
Barrow's, 202.
Goode, George Brown, notice of death of, 349
Goosander, 203.
Goose, Canada, 92.
Grackle, Bronzed, 294.
Purple, 283.
Rusty, 221.
Gracula chrysoptera, 266.
nobilis, 266.
Grosbeak, Black-headed, 120.
Blue, 213, 342.
Grosbeak, Evening, 259.
Pine, 21, 58, 175, 176, 177, 259, 266.
Rose-breasted, 159, 241, 295.
Grouse, Canadian Ruffed, 281.
Ruffed, 126, 292.
Grus mexicana, 68, 207, 215.
Guara alba, 215.
rubra, 207, 215.
Guiraca cærulea, 213, 342.
Gull, American Herring, 78, 88.
Herring, 312.
Laughing, 54.
Little, 149.
Mew, 168.
Ring-billed, 182.
Gundlach, Juan, biographical notice of, 267.

HABIA ludoviciana, 292, 295.
melanocephala, 120.
Hæmatopus palliatus, 215.
Hales, Henry, peculiar traits of some Scarlet Tanagers, 261.
Haliæetus leucocephalus, 212.
Harelda, 163.
glacialis, 163.
Harporhynchus redivivus, 121.
rufus, 176, 213, 218, 285.
Harvie-Brown, J. A., and T. E. Buckley, notice of their 'A Vertebrate Fauna of the Moray Basin,' 251.
Hatch, J Maurice, occurrence of the Great White Heron at Escondido, California, 172; the Western Martin and the California Cuckoo at Escondido, Cal., 347.
Hawk, American Sparrow, 222, 293.
Cooper's, 293.
Desert Sparrow, 116.
Red-shouldered, 222. 293,
Sharp-shinned, 88, 281, 177.
Headley, F. W., notice of his 'The Structure and Life of Birds,' 68.
Helmitherus vermivorus, 213, 284.
Helinaia swainsoni, 213.
Helminthophila bachmani, 264.
celata lutescens, 121.
chrysoptera, 179.
peregrina, 87.
rubricapilla, 263.
rubricapilla gutturalis, 264.
ruficapilla, 263.
Heron, Great White, 172.
Green, 281, 291, 292.

Heteractitis, 66.
Heterorhina pusilla, 345.
Hirundo puella, 114.
rustica, 300.
urbica, 302.
Histrionicus, 163.
histrionicus, 78, 202, 229.
Hoffmann, Ralph, summer birds (July 15–Aug. 13, 1894) of the Rhine, 297.
Hollister, N., Evening Grosbeak in southern Wisconsin, 259; a recent record of the Passenger Pigeon in Wisconsin, 341.
Holzner, Frank Xavier, habits of the Valley Partridge, 81.
Howe, Reginald Heber, Jr., abnormal plumage of a Pine Grosbeak, 176; three winter notes from Longwood, Mass., 178; notice of his 'Every Bird, a Guide to the Identification of the Birds of Woodland, Beach and Ocean,' 247; four winter records of the Short-eared Owl on Massachusetts Coast, 257; the wintering of the Towhee at Longwood, Mass., 260; the Nonpariel at Longwood, Mass., 261; correction, 266.
Hudson, W. H., notice of his 'British Birds,' 70.
Hummingbird, Black-chinned, 118.
Buff-breasted, 332.
Ruby-throated, 282, 293.
Rufous, 119.
Huxley, Thomas Henry, biographical notice of, 93.
Hydrochelidon nigra, 160.
nigra surinamensis, 216.
surinamensis, 160.
Hyetornis fieldi, 334.
Hylophilus griseiceps, 333.

Ibis rubra, 209.
Ibis, Scarlet, 209.
White-faced Glossy, 79.
Wood, 341.
Icteria virens, 214, 285.
Icterus cucullatus nelsoni, 120.
galbula, 283.
parisorum, 265.
spurius, 212.
Insignipitta, 60.
ellioti, 60.
gurneyi, 60.
Ionornis martinica, 215.
Jaeger, Parasitic, 171.
Jay, Blue, 221, 282, 294.
California, 120.
Job, Herbert K., the Ducks of Plymouth County, Mass., 197.
Judd, Sylvester D., feeding habits of the English Sparrow and Crow, 285; notice of his paper 'Four common Birds of the Farm and Garden,' 335.
Junco hyemalis, 178, 213, 218, 242, 283, 292, 294.
hyemalis oregonus, 245.
oregonus, 183.
Junco, Slate-colored, 178, 218, 283.
Kent Ornithological Club, 98.
Killdeer, 215, 281.
Kingbird, 282, 291, 293.
Cassin's, 119.
Kingfisher, Belted, 239, 281, 293.
Kinglet, Golden-crowned, 220, 346.
Ruby-crowned, 220.
Kirkwood, F. C., notice of his 'List of the Birds of Maryland,' 67.
Knight, O. W., the Pine Grosbeak in captivity, 21; the Golden Eagle in Maine, 82; a few notes from Maine, 177;
Knot, 86, 91.

Lagopus evermanni, 25.
leucurus, 186, 189.
rupestris townsendi, 26.
Lanius atricapillus, 266.
ludovicianus, 245.
ludovicianus excubitorides, 121.
Lano, Albert, *Olor buccinator* in western Minnesota, 78; *Buteo borealis harlani* in Minnesota, 342.
Lapwing, 311.
Lark, Horned, 181, 210.
Hoyt's Horned, 130.
Meadow, 229.
Prairie Horned, 294.
Larus argentatus smithsonianus, 88.
atricilla, 54, 215.
Carrovianus, 161.
canus, 168.
delawarensis, 181.
franklini, 186, 189, 207, 215.
Lawrence, George N., biographical notice of, 1.
Lawrence, Robert B., a new Long Island, N. Y., record for the Red-bellied Woodpecker (*Melanerpes carolinus*), 82.

Leptotila insularis, 333.
Lepus arcticus, 186, 190.
glacialis, 186, 190.
Limosa fedoa, 215.
Loomis, Leverett M., notice of his 'California Water Birds, No. II,' 168; do., No. III, 329.
Loon, 90.
Lophodytes cucullatus, 203, 215, 220.
Loxia curvirostra minor, 176, 179.
leucoptera, 207, 213.
Lucas, Frederic A., notice of his 'The Weapons and Wings of Birds,' 72; the deltoid muscle in the Swifts, 82; the taxonomic value of the tongue in birds, 109; the skull of the young Cormorant, 172; Notice of his paper on 'Osteological and Pterylographical Characters of the Procniatidæ,' 334.
Lydekker, Richard, notice of the 'Birds' of the 'Royal Natural History,' edited by, 156, 252.
Lyttleton, Thomas, Lord Lilford, notice of death of, 348.

Mackay, George H., the Terns of Muskeget Island, Massachusetts, Part II, 47; 'Gull Dick' again, 78; the 1895 migration of *Charadrius dominicus* in Massachusetts, 80; a correction, 86; Nantucket and Muskeget Island notes, 88; Gätke's Birds of Heligoland, 89; sundry notes, 182;
Macropteryx, 83.
coronata, 114.
Macrorhamphus griseus, 180.
scolopaceus, 88, 180.
Magpie, European, 311.
Mallard, 200.
Mareca americana, 200.
Maris, Willard Lorraine, notice of death of, 193.
Marmon fratercula, 189.
Martin, 302.
House, 324.
Purple, 283.
Western, 347.
Meadowlark, 4, 222, 258, 283, 294, 335.
Western, 29, 258.
Megalestris catarrhactes, 161.
skua, 161.
Megascops asio, 321.
Melanerpes carolinus, 82, 213, 220.
erythrocephalus, 213, 220, 258, 293.
formicivorus bairdii, 85, 117.
torquatus, 85.
Meleagris gallopavo, 221.
Mellisuga coccinea, 266.
Melospiza fasciata, 114, 214, 218, 242, 283, 294.
fasciata juddi, 132.
fasciata merrilli, 46.
georgiana, 114, 218.
lincolni, 87, 114.
Merganetta frœnata, 162.
Merganser castor, 164.
comatus, 162.
merganser, 164, 203.
serrator, 203.
Merganser, Hooded, 203.
Red-breasted, 203.
Mergus albellus, 163.
merganser, 220.
serrator, 215.
Merops spiza, 226.
Merriam, Florence A., nesting habits of *Phainopepla nitens* in California, 38; notes on some of the birds of Southern California, 115; notice of her 'How Birds affect the Farm and Garden', 337.
Merula merula intermedia, 331.
migratoria, 213, 219, 285, 297.
migratoria propinqua, 245.
Michigan Ornithological Club, 194.
Micropalama himantopus, 88, 180.
Micropus, 83.
Miller, Gerrit S., Jr., description of a new Jay from Mexico, 34.
Milvulus forficatus, 68, 83.
Mimus polyglottos, 213, 239, 344.
Mitchell, Walter I., birds killed by a storm, 348.
Mniotilta varia, 214, 260, 283, 295.
Mockingbird, 167, 222, 237, 335, 344.
Molothrus ater, 71, 212, 283.
badius, 72.
bonariensis, 71.
rufoaxillaris, 72.
Montgomery, Thomas H., notice of his paper on migration of birds as a check upon geographical variation, 335.
Mormon glacialis, 189.
Morris, Robert O., rare visitors to the Connecticut River Valley in Massachusetts in 1895, 86;

Motacilla alba, 301.
eques, 44.
ludoviciana, 44.
lugens, 240.
pusilla, 44.
torquata, 44.
Mulliken, W. E., Baird's Sandpiper in Michigan, 174.
Murre, Brünnich's, 171.
Murrelet, Ancient, 168.
Muscicapa ferruginea, 266.
Myiarchus cinerascens, 85, 119.
crinitus, 282.
tyrannulus, 332.

Nash, C. W., bird notes from Toronto, Canada, 347.
Nesochen, 162.
sandwichensis, 162.
Nesoctites micromegas, 333.
Nesotriccus ridgwayi, 75.
Nighthawk, 160, 282.
Sennett's, 134.
Nonpariel, 261.
Norton, Arthur H., recent observations on *Histrionicus histrionicus* in Maine, 229.
Numenius borealis, 80, 92, 182.
longirostris, 215.
Nuthatch, Red-breasted, 84, 346.
White-breasted, 285, 297, 346.
Nyctala acadica, 292, 293.
Nyctea nyctea, 207, 213.
Nycticorax nycticorax nævius, 215.
violaceus, 215.
Nyroca africana, 164.
nyroca, 164.

Oberholser, Harry C., a question of nomenclature, 190; critical remarks on the Mexican forms of the genus *Certhia*, 314; notices of his paper on new subspecies of *Dryobates pubescens*, 330.
Oceanodroma tristrami, 161.
Oidemia americana, 89, 186, 189, 203.
carbo, 163.
deglandi, 88, 89.
perspicillata, 89.
Olor buccinator, 78.
Opisthocomus cristatus, 72.
Oriole, Arizona Hooded, 120.
Baltimore, 158, 283, 336.
Oriolus caudacutus, 271.
Ornatipitta, 60.
boschi, 60.
guaiana, 60.
schwaneri, 60.
Ortalis vetula mccalli, 253.
Otocoris alpestris, 181, 207, 210.
alpestris arenicola, 130.
alpestris hoyti, 130.
alpestris leucolæma, 130.
alpestris pallida, 185, 188.
alpestris praticola, 130, 294.
Ouzel, Water, 310.
Ovenbird, 284, 296.
Owl, American Barn, 117.
Barred, 222, 293.
Burrowing, 117
Dusky Horned, 257.
Florida Burrowing, 99.
Great Horned, 293.
Saw-whet, 291, 293.
Short-eared, 257.
Screech, 321.
Western Horned, 117.

Palmer, William, the Scissor-tailed Flycatcher in Virginia and Maryland, 83; second occurrence of the Lark Sparrow in Virginia, 84; on the Florida Ground Owl (*Speotyto floridana*), 99; a note on *Buteo borealis lucasanus* Ridgway, 342; breeding of the Yellow-throated Warbler (*Dendroica dominica*) in Virginia, near Washington, 343.
Partridge, Valley, 81.
Parus americanus, 44.
ater, 300.
ater britannicus, 327.
atricapillus, 285, 292, 297.
bicolor, 214, 220.
borealis, 336.
britannicus, 327.
carolinensis, 214, 220.
cœruleus, 300.
dresseri, 327.
fringillaris, 44.
hudsonicus, 345, 346.
inornatus, 122.
major, 300.
palustris, 300, 327.
palustris dresseri, 327.
Passer domesticus, 114.
Passerculus sandwichensis savanna, 214.
Passerella iliaca, 214, 217, 265.

Passerina amœna, 121.
ciris, 261.
cyanea, 213, 283, 295.
Pavoncella pugnax, 68.
Peabody-bird, 217.
Peabody, P. B., White-faced Glossy Ibis breeding in Minnesota, 79.
Pelecanoides exsul, 161.
Penelope iacupema, 266.
leucolophos, 266.
Perisoreus infaustus, 158.
Petrochelidon lunifrons, 121, 295.
Peucedramus olivaceus aurantiacus, 330.
Pewee, Wood, 282, 293.
Western Wood, 120.
Phaëthon flavirostris, 239.
Phainopepla nitens, 38, 265.
Phalacrocorax carbo, 312.
dilophus, 78, 89, 90, 178.
urile, 172.
Phalarope, Red, 173.
Phalaropus, 65.
Phasianus ignitus, 253.
Philohela minor, 215.
Phlegopsis saturata, 331.
Phœbe, 282, 293.
Black, 120.
Phororhacos, 61, 62, 63.
inflatus, 61.
longissimus, 61.
Picus montanus, 190, 191.
Pigeon, Passenger, 4, 81, 234, 290, 341.
Wild, 292, 341.
Pinicola enucleator, 21, 58, 175, 176, 177, 259.
Pipilo chlorurus, 185, 265.
erythrophthalmus, 178, 213, 218, 260, 283, 294.
Piranga erythromelas, 214, 261, 283, 294.
rubra, 213.
Pitta angolensis, 60.
arcuata, 60.
cucullata, 60.
cyanonota, 60.
forsteni, 60.
inspeculata, 60.
mackloti, 60.
nympha, 60.
oreas, 60.
palliceps, 60.
propinqua, 60.
soror, 60.
strepitans, 60.
vigorsi, 60.
Plectrophenax nivalis, 165, 242.
Plegadis guarauna, 79.
Plover, American Golden, 80, 89, 142.
Black-bellied, 89, 181.
Field, 291.
Golden, 146.
Killdeer, 281.
Podilymbus podiceps, 215.
Polioptila cærulea, 214, 264.
cærulea obscura, 123.
Poocætes gramineus, 214, 283, 294.
Porzana carolina, 207, 215.
noveboracensis, 173, 179, 347.
Prentiss, D. Webster, notes on the birds of Bermuda, 237.
Priocella, 162.
Priotelus gracilis, 114.
Procnias, 334.
Procniatidæ, 344.
Progne subis, 214, 283.
subis hesperia, 347.
Protonotaria citrea, 214.
Psaltriparus minimus californicus, 163.
Pteronetta, 162.
hartlaubi, 162.
Publications Received, 76, 169, 253, 338.
Puffin, Large-billed, 255.
Puffinus auduboni, 161.
borealis, 161.
creatopus, 228.
fuliginosus, 341.
gavia, 161.
gravis, 161.
griseus, 161, 228.
kuhli, 161.
major, 161.
opisthomelas, 161, 223.
tenuirostris, 171.
Pulchripitta, 60.
iris, 60.
Pyrocephalus rubineus mexicanus, 258.

Quail, Valley, 116.
Querquedula circia, 164.
hartlaubi, 162.
querquedula, 164.
Quiscalus insularis, 333.
major, 212.
quiscula, 245, 283.

Rail, Clapper, 86.
King, 78, 86.

Rail, Yellow, 173, 179, 347.
Raine, W., discovery of the eggs of the Belted Piping Plover, 256; nidification of the Dusky Horned Owl, 257.
Rallus crepitans, 86.
elegans, 79, 86, 215.
longirostris saturatus, 185.
Raven, American, 83.
Redbreast, 300.
Redhead, 201.
Redshank, 151.
Redstart, 285, 296.
Black, 299, 311.
Regulus calendula, 214, 220.
satrapa, 214, 220, 346.
Resler, Arthur, note on the *flexor hallucis brevis* in the Night Heron (*Nycticorax nycticorax nævius*), 172.
Rhea americanus, 164.
rhea, 164.
Rhoads, Samuel N., additions to the avifauna of Tennessee, 181; 'Ord's Zoölogy' again, 192; notice of his List of Birds of Tennessee, 244.
Richmond, Charles W., notice of papers by, on Dr. W. L. Abbott's collections of birds made in Central Asia, and in the Seychelles and other islands, 331; notice of papers by, on new species of birds 331. See also Robinson, Wirt.
Ridgway, R., notice of papers by, on new species of birds, 330.
Ridgway, R., and Lucas, F. A., notice of their papers on the family Procniatidæ, 334.
Rissa brevirostris, 161.
tridactyla kotzebeui, 161.
tridactyla pollicaris, 161.
Road-runner, 117, 257.
Robin, 219, 285, 297.
Robinson, Wirt, and Richmond, Charles W., notice of paper by on birds observed on the Island of Margarita, etc., 332.
Rotzell, W. E., notice of his 'Birds of Narberth, Pa., and Vicinity', 244.
Ruticilla titys, 299.

Sage, John H., Thirteenth Congress of the American Ornithologists' Union, 55.
Salvadori, T., notice of his Catalogue of the Chenomorphæ, Crypturi, and Ratitæ, 162.
Salvin, Osbert, notice of his Catalogue of the Gaviæ, 161.
Sanderling, 150, 181.
Sandpiper, Baird's, 174, 180, 255.
Buff-breasted, 180.
Marsh, 151.
Purple, 180.
Semipalmated, 88, 180.
Solitary, 88.
Spotted, 281, 291, 292.
Stilt, 180.
Western, 88, 174.
Wood, 151
Sapsucker, Yellow-bellied, 293.
Saunders, Howard, notice of his Catalogue of the Tubinares, 160.
Sayornis nigricans, 85, 120.
phœbe, 282, 293.
saya, 140.
Scardafella ridgwayi, 333.
Sclater, P. L., notice of his remarks on 'Rules for Naming Animals,' 325.
Scolecophagus carolinus, 212, 221, 242.
cyanocephalus, 120.
Scolopax rusticola, 68.
Scoters, 203.
Scoter, American, 89.
White-winged, 88.
Seebohm, Henry, biographical notice of, 96; his collection of birds, 195.
Seiurus aurocapillus, 213, 284.
motacilla, 86, 284, 296, 344.
noveboracensis, 213, 245, 292, 296.
Selasphorus rufus, 119.
Setophaga ruticilla, 214, 285, 296.
Schalow, Herman, notice of his 'Ueber eine Vogelsammlung aus Westgrönland,' 243.
Shearwater, Black-vented, 223.
Slender-billed, 171.
Sheldrake, Pond, 203.
Short, Ernest H., notice of his 'Birds of Western New York,' 245.
Shoveller, 201.
Shrike, Great Gray, 309.
Red-backed, 309.
White-rumped, 121.
Shufeldt, R. W, the Cormorant Rookeries of the Lofoten Islands, 312.

Sialia azurea, 189.
mexicana occidentalis, 124.
sialis, 214. 222, 285, 297.
sialis azurea, 185.
Sitta canadensis, 84, 213, 220, 346.
carolinensis, 213, 220, 285, 297.
pusilla, 213.
Skylark, 303 304, 306.
Smith, Clarence A., notice of death of, 267.
Snipe, Wilson's, 341.
Snowbird, 294.
Snowflake, 165.
Somateria mollissima borealis, 163.
mollissima dresseri, 89, 202.
spectabilis, 203, 347.
Sparrow, Chipping 283.
Dakota Song, 132.
English, 239, 285, 294, 348.
Field, 222, 283, 294.
Fox, 217.
Grasshopper, 294.
Harris's, 176.
Hedge, 310.
House, 306.
Ipswich, 84.
Lark, 84
Leconte's, 208.
Lincoln's, 87.
Merrill's, 46.
Savanna, 283, 291, 294.
Song, 283, 291, 294.
Tree, 181.
Vesper, 283.
White-throated, 159, 178, 217, 260.
Sparrow-bunting, 159.
Spatula clypeata, 201, 215.
Speotyto brachyptera, 333.
cunicularia hypogæa, 108, 117.
floridana, 99.
Sphyrapicus ruber, 85.
thyroideus, 85.
varius, 213, 220, 292, 293.
Spinus tristis, 213, 218, 241, 242, 283, 294.
Spizella monticola, 181, 218.
pusilla, 214, 222, 283, 294.
socialis, 214, 283, 294.
Spoonbill, Roseate, 209.
Sprague, U. A., the Dwarf Thrush in Colorado, 85.
Squatarola, 65.
helvetica, 65.
Steganopus, 65.
Stelgidopteryx serripennis, 214.
Sterna cantiaca, 161.
dougalli, 49, 52.
fluviatilis, 161.
hirundo, 52, 161.
macroura, 161.
paradisæa, 53, 161, 245.
sandvicensis, 161.
Stercorarius crepidatus, 161.
parasiticus, 161, 171.
Stone, Witmer, a revision of the North American Horned Owls, with description of a new subspecies, 153; some questions of nomenclature, 183; notice of his paper on 'The Molting of Birds with special reference to the plumage of the smaller Land Birds of Eastern North America,' 240; notice of his paper on 'Birds collected in North Greenland,' etc., 243; Golden Eagles in Virginia, 256;
Strix pratincola, 117.
Sturnella magna, 5, 213, 258, 283, 294.
magna neglecta, 29, 258.
Swallow, Bank, 283.
Barn, 283, 295.
Cliff, 121, 295.
Eave, 307.
White-bellied, 4.
Swan, 79.
Swann, H. Kirke, notice of his 'Handbook of British Birds,' 328.
Swift, 304.
Chimney, 82, 282, 293.
Pied, 159.
White-throated, 159.
Sylvia pusilla, 44.
torquata, 44.
Sylvania canadensis, 179, 285, 292, 296.
mitrata, 214, 285.
Symphemia semipalmata, 88, 180.
semipalmata inornata, 215.
Synthliboramphus antiquus, 168.
Syrnium nebulosum, 222.
nebulosum alleni, 212, 293.
occidentale, 265.
Syrrhaptes paradoxus, 251.

Tachornis, 83.
gracilis, 114.
Tachycineta bicolor, 4, 114.
Tadorna casarca, 243.
cornuta, 164.
tadorna, 164.

Tanager, Scarlet, 241, 261, 283, 295.
Tantalus loculator, 245, 341.
Taylor, H. H., the Carolina Wren in Connecticut, 84.
Teal, Blue-winged, 200.
Green-winged, 200.
Tern, Arctic, 53.
Roseate, 49, 52.
Wilson's, 51, 52.
Tetraogallus caucassicus, 253.
Thayer, Abbott H., the law which underlies protective coloration, 125; further remarks on the law which underlies protective coloration, 318.
Thrasher, Brown, 176, 218, 285, 335.
Californian, 121.
Thriothorus, 344.
Thrush, Dwarf, 75.
Gray-cheeked, 182.
Hermit, 219, 285, 291, 297.
Louisiana Water, 86.
Water, 291, 296.
Wilson's, 297.
Wood, 285, 297.
Thryothorus bewickii, 344.
bewickii bairdi, 344.
bewickii leucogaster, 344.
ludovicianus, 84, 214, 219.
Thurber, E. C., Southern California bird notes, 265; notice of death of, 349.
Tit, Blue, 300.
Coal, 300, 308.
Long-tailed, 308.
Swamp, 300, 306.
Titmouse, Great, 300.
Plain, 122.
Torrey, Bradford, Virginia notes, 179.
Totanus flavipes, 215.
melanoleucus, 207, 215.
solitarius, 88, 215.
Towhee, 260, 280, 283.
Anthony's, 165.
Townsend, C. H., notice of his 'Birds from Cocos and Malpelo Islands,' etc., 75.
Tringa alpina, 164.
bairdi, 80, 174, 180, 255.
canutus, 86, 91.
maritima, 180.
minutilla, 215.
Trochilus alexandri, 118.
colubris, 282, 293.
Troglodytes aëdon, 214, 285, 296.
aëdon aztecus, 122.
Troglodytes hiemalis, 178, 219, 292, 296.
leucogaster, 345.
marianæ, 345.
parvulus, 301.
Trogon curucui, 266.
ferrugineus, 266.
flammeus, 266.
hæmorrhoidalis, 266.
strigilatus, 265.
viridis, 262.
Tryngites subruficollis, 180.
Turdus alicæ, 182.
aonalaschkæ, 85.
aonalaschkæ pallasi, 213, 219, 285, 292, 297.
fuscescens, 213, 292, 297.
merula, 298.
mustelinus, 213, 285, 297.
Tufts, Harold F., Wilson's Snipe in Nova Scotia in Winter, 341.
Turkey, Wild, 292.
Turtur abbotti, 332.
Tyrannus tyrannus, 282, 293.
verticalis, 85.
vociferans, 85, 119.

Uria lomvia, 171.
mandtii, 266.
Urinator imber, 77, 90.
Uropsila leucogaster, 345.

Vaughan, C. Wheaton, Baird's Sandpiper at East Hampton, Long Island, N. Y., 80.
Vireo flavoviridis, 263.
gilvus, 87, 284.
noveboracensis, 214, 238.
olivaceus, 214, 284, 295.
solitarius, 214, 295, 345.
Vireo, Red-eyed, 283, 295.
Solitary, 291, 295, 343.
Warbling, 87, 283.
White-eyed, 238.
Yellow-green, 263.
Vulture, Turkey, 116, 222, 341.

Wagtail, Mountain, 310.
Pied, 149.
White, 149, 304.
Warbler, Audubon's, 121.
Bay-breasted, 181.
Black-and-White, 260, 284, 295.
Black-and-Yellow, 179.
Blackburnian, 179, 291, 295.
Black-poll, 345.

Warbler, Black-throated Blue, 179, 295.
Black-throated Green, 179, 284, 295.
Canadian, 285, 291, 295.
Cape May, 84, 87, 182.
Cerulean, 179.
Chestnut-sided, 88, 280, 284, 295.
Golden-winged, 179, 285.
Hooded, 179, 280.
Lutescent, 121.
Magnolia, 284, 295.
Mourning, 179.
Northern Parula, 44.
Palm, 182, 343.
Parula, 284, 295.
Summer, 295.
Swainson's, 207.
Tennessee, 87.
Worm-eating, 284.
Yellow, 179, 284.
Yellow-throated, 343.
Warren, B. H., notice of his Taxidermy, etc., 334.
Water-Thrush, Large-billed, 284.
Louisiana, 344.
Wayne, Arthur T., the Cape May Warbler (*Dendroica tigrina*) in the maritime portions of South Carolina, 84; the Red-breasted Nuthatch (*Sitta canadensis*) on Long Island, S. C., 84.
Webber, Herbert J., notice of his paper on the Mockingbird and *Yucca aloifolia*, 167.
Wharton, Henry T., notice of death of, 97.
Whip-poor-will, 282.
White, George R., *Porzana noveboracensis* near Ottawa, Canada, 173.
Widgeon, European, 255.
Widmann, O., the Peninsula of Missouri as a winter home for birds, 216; Bachman's Warbler (*Helminthophila bachmani*) in Greene County, Arkansas, 264.
Willet, 88.
Wilson, Sidney S., Harris's Sparrow in spring dress in autumn, 176.
Witchell, Charles A., notice of his 'The Evolution of Song,' 249.
Woodcock, 126, 292.
Woodpecker, California, 117.
Downy, 220, 281, 293, 346.
Hairy, 220, 281, 293, 346.
Pileated, 220, 346.
Red-bellied, 82, 220.
Red-headed, 220, 258, 293.
Rocky Mountain, 32.
Woodruff, Frank M., the Raven in Illinois, 83; on birds reported as rare in Cook County, Ill., 179.
Worthington, W. W., another Harlequin Duck record for Long Island, 78.
Wren, Carolina, 84, 219.
House, 280, 285, 295, 335.
Short-billed Marsh, 182, 347.
Vigors's, 121.
Western House, 122.
Winter, 178, 219, 295.
Wren-tit, 122.

Xanthocephalus xanthocephalus, 120.
Xema sabinei, 245.
Xenopicus albolarvatus, 85.

Yellow-hammer, 303, 305, 306, 309.
Yellow-throat, Maryland, 285, 296.
Young, R. T., summer birds of the Anthracite Coal Regions of Pennsylvania, 278.

Zanthopygia narcissina, 240.
Zenaidura macroura, 215, 261.
Zonotrichia albicollis, 159, 178, 214, 217, 260.
harrisi, 176.

## ERRATA.

Page 161, line 21, for '*policaris*' read '*pollicaris*.'

" 176, " 7, for 'decreased .20 of an inch' read 'decreased to .20 of an inch.'

" 178, line 21, for 'on the 25th' read '25th of December.'

" 232, " 15, for 'cave' read 'cove.'

" " " 37, for 'new' read 'old.'

" 233, last line, for 'as regards' read 'beyond.'

' 260, line 15 for 'Oct. 8' read 'Oct. 2.'

A.1 v.

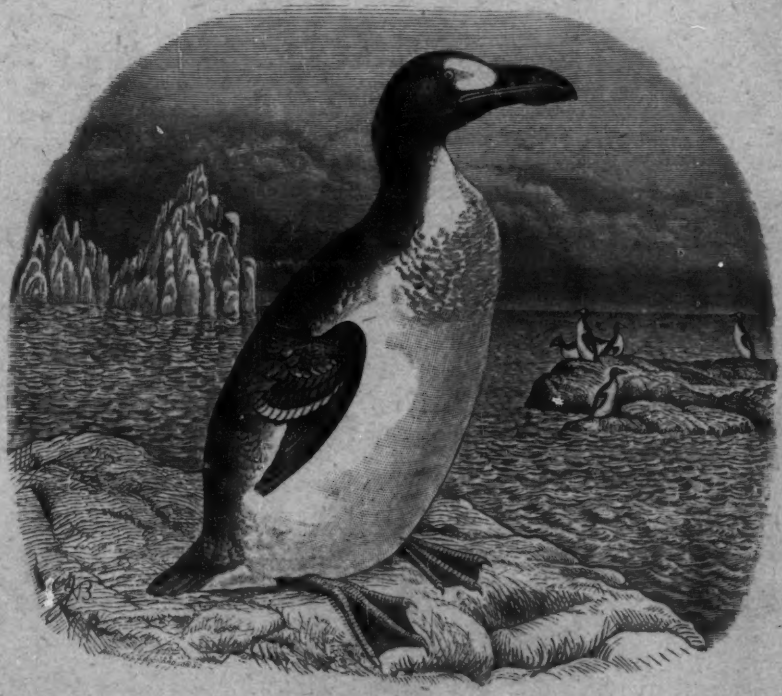
GENERAL LIBRARY
UNIV. OF MICH.
19 OCT 1896

Old Series, Vol. XXI } CONTINUATION OF THE BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB { New Series, Vol. XIII

# The Auk

## A Quarterly Journal of Ornithology

Vol. XIII —OCTOBER, 1896— No. 4



PUBLISHED FOR

The American Ornithologists' Union

NEW YORK

L. S. FOSTER

# CONTENTS.


PAGE

THE SHARP-TAILED SPARROW (*Ammodramus caudacutus*) AND ITS GEOGRAPHICAL RACES. By *Jonathan Dwight, Jr.* (Plate IV.) . . . . . 271

SUMMER BIRDS OF THE ANTHRACITE COAL REGIONS OF PENNSYLVANIA. By *R. T. Young.* . . . . 278

FEEDING HABITS OF THE ENGLISH SPARROW AND CROW. By *Sylvester D. Judd.* . . . . . 285

SUMMER BIRDS OF NORTHERN ELK COUNTY, PA. By *William L. Bailey.* . . . . . 289

SUMMER BIRDS (JULY 15–AUG. 13, 1894) OF THE RHINE. By *Ralph Hoffmann.* . . . . . 297

THE CORMORANT ROOKERIES OF THE LOFOTEN ISLANDS. By *R. W Shufeldt, M.D.* (Plate V.) 312

CRITICAL REMARKS ON THE MEXICAN FORMS OF THE GENUS *Certhia*. By *Harry C. Oberholser.* 314

FURTHER REMARKS ON THE LAW WHICH UNDERLIES PROTECTIVE COLORATION. By *Abbott H. Thayer.* . . . . . 318

EVIDENCE SUGGESTIVE OF THE OCCURRENCE OF 'INDIVIDUAL DICHROMATISM' IN *Megascops asio*. By *Arthur P. Chadbourne, M.D.* . . . . . 321

RECENT LITERATURE.—Sclater on Rules for Naming Animals, 325; Swann's Handbook of British Birds, 328; Loomis on California Water Birds, 329; Ridgway on New Species and Subspecies of Birds, 330; Oberholser on Two New Subspecies of *Dryobates*, 330; Richmond on Mexican Birds, 330; Richmond on New Species of Birds, 331; Dr. Abbott's Collections from Asia, 331; Dr. Abbott's Collections from the Seychelles and other Islands, 331; Robinson's Birds of Margarita, 332; Cherrie on San Domingo Birds, 333; Warren's 'Taxidermy' and Bird-Laws, 334; Ridgway and Lucas on a New Family of Birds, 334; Montgomery on Migration as a Check upon Geographical Variation, 335; Contributions to Economic Ornithology, 335; Publications Received, 338.

GENERAL NOTES.—Occurrence of the Wood Ibis (*Tantalus loculator*) in Bristol County, Mass., 341; Wilson's Snipe in Nova Scotia in Winter, 341; The Wild Pigeon at Englewood, N. J., 341; Recent Record of the Passenger Pigeon in Southern Wisconsin, 341; The Turkey Vulture in the Catskills, 341; *Buteo borealis harlani* in Minnesota, 342; A Note on *Buteo borealis lucasanus* Ridgway, 342; Feeding Habits of Purple Finches, 342; First Occurrence of the Blue Grosbeak in New Hampshire, 342; Solitary Vireo (*Vireo solitarius*) nesting in Connecticut, 343; *Dendroica palmarum* in New York City, 343; Breeding of the Yellow-throated Warbler (*Dendroica dominica*) in Virginia, near Washington, 343; The Louisiana Water-Thrush breeding in Berkshire County, Mass., 344; The Mockingbird (*Mimus polyglottos*) in Canada. 344; *Thriothorus* or *Thryothorus?* 344; The Hudsonian Chickadee breeding in Southern Vermont, 345; The Hudsonian Chickadee (*Parus hudsonicus*), Red-breasted Nuthatch (*Sitta canadensis*), and Golden-crowned Kinglet (*Regulus satrapa*) in Plymouth County, Mass., in Summer, 346; The Western Martin and the California Cuckoo at Escondido, Cal., 347; Bird Notes from Toronto, Canada, 347; Iridescence of Feathers, as explained by an Old Author, 347; Birds killed by a Storm, 348.

NOTES AND NEWS.—Obituary.—Lord Lilford, 348; Eugene Carleton Thurber, 349; Dr. G. Brown Goode, 349; Bird Day in Schools, 349; Museum of Natural History at Providence, 350; 'The Osprey,' 350; 'Das Tierreich', 350; New Ornithological Publications, 351.



'THE AUK,' published as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is edited by Dr. J. A. ALLEN, with the assistance of Mr. F. M. CHAPMAN.

TERMS:—$3.00 a year, including postage, strictly in advance. Single numbers, 75 cents. Free to Honorary Members, and to Active and Associate Members of the A.O.U. not in arrears for dues.

**Subscriptions** and **Advertisements** should be addressed to the publisher, L. S. FOSTER, 35 PINE STREET, NEW YORK, N. Y. **Foreign Subscribers** may obtain 'THE AUK' through GURNEY AND JACKSON, 1 PATERNOSTER ROW, LONDON.

All **articles and communications** intended for publication, and all **books and publications** for notice, should be sent to Dr. J. A. ALLEN, AMERICAN MUSEUM OF NATURAL HISTORY, CENTRAL PARK, NEW YORK CITY.

AUTHORS' SEPARATES.

Authors of general articles will receive **25 separates of their articles gratis.** Additional copies may be ordered, if desired, but *such orders must always accompany the manuscript.* The prices of separates are as follows:

| No. of copies. | Number of pages of article. | | | | | | | Covers and Title. |
|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 8 | 12 | 16 | 24 | 32 | |
| 50 | $0.50 | $1.00 | $1.50 | $2.00 | $3.00 | $4.50 | $6.00 | $0.50 |
| 75 | .65 | 1.15 | 1.75 | 2.25 | 3.25 | 5.00 | 6.50 | .50 |
| 100 | .80 | 1.30 | 2.00 | 2.50 | 3.75 | 5.50 | 7.00 | .75 |

# The Observer FOR 1896

## ENLARGED AND IMPROVED.

**WE NUMBER AMONG OUR WRITERS ON ORNITHOLOGY THE FOLLOWING:**

OLIVE THORNE MILLER, JOHN N. CLARK,
DR. A. K. FISHER, JULIA STOCKTON ROBINS,
FLORENCE A. MERRIAM, REV. J. M. KECK,
PROF. WALTER B. BARROWS, DR. CHAS. B. GRAVES.

## People of Refinement and Good Taste

With a love of the true and beautiful, especially in the wonders and beauties of Nature, cannot fail to appreciate THE OBSERVER, a monthly magazine of the out-door world. Its mission is to love and learn Birds, Insects, Plants, Flowers, Ferns, Mosses, Stars, Planets, Minerals, the Marvels of Minute Life in the Ponds, Ditches, etc. Do you enjoy roaming over the hills, across the open fields, along the picturesque highways, or through "Nature's temples," the woods? Or if you have, or expect to have a microscope, then try THE OBSERVER.

*Subscription, One Year, $1.* *Send Ten Cents for Sample Copy.*

**E. F. BIGELOW, Publisher,**

**PORTLAND, CONN.**

---

## We are best advertised by what our friends say of us.

**Otto Widmann, Old Orchard, Mo.**—"I am highly pleased with the hatching process from which you are going to raise your young Osprey. It will be hardly necessary to tell you to put my name on the list of subscribers, but I hope that all my friends do likewise."

**A. W. Anthony, San Diego, Cal.**—"I think that there is plenty of room for a well conducted Ornithological Journal and will gladly give such the support in my power, and hope you will meet with the success you deserve."

**Chas. K. Worthen, Warsaw, Ill.**—"I embrace my first opportunity to congratulate you, and shall be very glad to do anything in my power to assist you."

**D. A. Cohen, Alemeda, Cal.**—"I like prospectus very much, and eagerly await the 1st number. If you carry out your plans you will make your paper a standard and give no cause for complaint."

**C. Irwin Salter, Springfield, Ill.**—"A strictly 'O & O' journal will be a regular 'treat.'"

**Henry B. Keading, Drytown, Cal.**—"You are giving us just what we want."

**Wm. L. Kells, Listowel, Can.**—"I wish it had come sooner."

*Edited by Walter A. Johnson, Dr. A. C. Murchison, Chester Barlow, California Dept.*

**Only Illustrated Monthly in America devoted entirely to Ornithology.**

**$1.00 a year. 10 cents a copy.**

**THE OSPREY,** *217 MAIN STREET, GALESBURG, ILL.*